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OCULAR PEMPHIGUS.

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THE first sign of ocular pemphigus may appear in the eyes, mouth or genitals, and thus present a problem in diagnosis to the ophthalmologist, the dermatologist, the gynaecologist or the venereologist.

The fact that ocular pemphigus is a chronic form of pemphigus of all the mucous membranes was first pointed out by Thost (1919). He found that it led to scarring of the conjunctiva, nose, mouth, larynx and oesophagus, but ran a benign course which in his experience had never been fatal.

Even after these observations, and probably because of the rarity of the disease, misconceptions both about its relationship to pemphigus vulgaris and its prognosis have persisted.

The disease is not usually recognized until the characteristic changes in the conjunctiva develop, hence the prominence given to these in the name, Ocular Pemphigus. It is our belief that the lesions in other areas present unique characteristics which enable a correct diagnosis to be reached before the eyes are involved. Our reports of 7 cases which follow illustrate the appearance and course of these lesions and their differences from other pemphigoid eruptions.

The earliest reference to the disease in the English language is a case described by Cooper in 1858, but Lever and Talbott (1942*b*) give credit to Wichmann for an earlier description in 1794. The disease attacks those of advanced years. Lever and Talbott (1942*a*) found the average age of 10 patients to be 61 years, and a preponderance of females was reported by Kanee (1947).

Conjunctival Involvement.

The disease usually starts in one eye, and the second becomes affected after an interval of less than two years. At first there is a simple catarrhal conjunctivitis with a mucoid discharge which causes burning and itching of the eyes. This stage may last some years and fluctuate in severity but eventually scar tissue forms in the subconjunctival tissue. This causes thickening and later shrinkage of the conjunctiva and adhesions form between the palpebral conjunctiva and the limbus. As the process advances, the conjunctiva becomes shrivelled and atrophic, the culs-de-sac become obliterated, and the upper lids are pulled down, producing an appearance of ptosis.

In the final stage the lids, which become fixed to the globe, restrict all movement of the eye and attempts to move the eyes may be painful. Xerosis of the conjunctiva results from strangulation of the lacrimal ducts in scar tissue, and corneal ulcers and perforation may follow.

Although vesicle formation of the conjunctiva probably precedes scar formation, the vesicles soon rupture and they are not commonly seen. Lever and Talbott (1942*a*) saw conjunctival vesicles in only 1 of 10 cases and in Franke's series of cases they were seen in one-seventh. The chronicity of the eye changes is the unique feature of ocular pemphigus since a similar end-result may follow rapidly upon the conjunctival inflammation of erythema multiforme exudativum (Stevens-Johnson Syndrome) (Klauder and Cowan, 1942). The same end-result may occur in cases of epidermolysis bullosa.

Mouth Lesions.

Occasionally the eyes may be the only region involved, but other mucosae were affected in 9 of Lever and Talbott's (1942*a*) 10 cases. The disease may begin with mucosal lesions, and these may be present for several years before the eyes become involved. Terrien *et al.* (1931) described a case where 6 years elapsed after oral lesions appeared before the conjunctiva was involved, and in Clapp's (1924) patient the interval was 8 years.

In the mouth intact vesicles may be seen. The common lesion is a superficial relatively painless erosion, which as it heals leaves white lacy and linear scars suggestive of lichen planus. Adhesions may form between the buccal mucosa and the alveolar processes.

Similar lesions may occur on the nasopharynx, uvula and epiglottis. Lever and Talbott (1942*a*) report four cases of oesophageal involvement, in one of which the stenosis was severe enough to cause death from inanition. Continued erosions and scarring of the nasal mucosa may lead to atrophic rhinitis (Blondel and Bonhomme, 1938).

Lesions of the Genitalia.

In the male, lesions which occur on the glans penis produce a moist velvety violaceous appearance with adhesions and scars which prevent retraction of

the foreskin (Kanee, 1947 ; Lever, 1944). In the female, vesiculation and erosions on the vulva and vagina occur frequently and scarring may cause atresia of the vagina (Klauder and Cowan, 1942).

Skin Lesions.

Cutaneous lesions in the form of recurrent bullae occur in a minority of cases, though Lever (1944) found that 9 of 19 cases had skin lesions and that 6 of these showed scar formation.

The skin lesions may precede the mucosal changes by many years. Of Lever's 6 cases with scarring of the skin, the eruption appeared first in five cases with intervals which ranged between 7 years and 22 months before the mucosae were involved. Klauder (1938) described a case with a cutaneous eruption 7 years before the onset of mucosal lesions and 16 years before ocular involvement. One of Rycroft's (1934) 5 cases had a bullous eruption diagnosed as pemphigus vulgaris two years before the mucosae were affected and by that time the skin eruption had healed.

In most cases the skin eruption is localized, the eyelids and face being a common site, and examples of the rash mainly affecting the head, face and neck are relatively numerous. (Terrien *et al.*, 1931 ; Lever, 1944 ; Kanee, 1947 ; Klauder and Cowan, 1942).

A generalized rash is uncommon, though Cooper (1858) describes it in his original case and more recently Lever (1944) reports it in one of his cases.

The eruption may be purely bullous, consisting, as in the case described by Terrien *et al.* (1931), of bullae 5–20 mm. in diameter, hemispherical and tense and arising from normal skin without other associated lesions and without itching or pain. Lever (1942, 1944) drew attention to a more characteristic eruption produced by the recurrence of bullae on a circumscribed area which led to scarring similar to the mucosal lesions. The resultant lesion consisted of an atrophic erythematous plaque which was at times dotted with flaccid vesicles. As with the purely bullous eruption, the face and scalp were more commonly affected, and Lever comments on the close resemblance of the plaques to lupus erythematosus. Skin lesions suggestive of lupus erythematosus in association with pemphigus of the mucosae were described earlier by Klauder (1938), who reported a case of ocular pemphigus with a scaly and scarring eruption on the scalp for 27 years which he considered was lupus erythematosus ; and Constans (1927) described a case with lesions on the arms which he diagnosed as lupus erythematosus.

Histology.

Most early studies of the histology have been concerned with the conjunctival changes, which consist of subconjunctival fibrosis without any specific lesions.

However, in 1951, Lever studied the histology of intact bullae from the

buccal mucosa and the skin. He found that the bulla was formed subepidermally, and that there were no acantholytic changes in the epidermal cells. Since it has been established that the bullae of the pemphigus group are found intra-epidermally and are accompanied by degenerative changes in the epidermis (Civatte, 1943) it would appear that ocular pemphigus is not a member of the true pemphigus group, and the idea that it ultimately ends a generalized pemphigus vulgaris (Urbach, 1938) is therefore erroneous.

Prognosis.

Lever (1944) observed 19 cases over a period of 7 years and none died of the disease. One of his cases had been suffering from the disease for 19 years. Klauder's (1938) patient had suffered from an active process for 27 years. Seven to eight years is a common duration (Kane, 1947).

During its course there may be long remissions, but on the other hand the eye lesions may cause blindness in 2 years, and Rycroft (1934) found that most authors considered steady progress to blindness to occur in all cases. Death as the result of the disease is very rare. Blondel and Bonhomme (1938) report one case where the general condition deteriorated as the result of severe mouth and pharyngeal lesions, and one of Lever's patients died as a result of oesophageal stenosis.

CASE REPORTS.

CASE 1.—*A woman aged 66.*

For 3½ years this patient has suffered from a painful recurrent ulceration of the tongue and slight soreness of the eyes. In March 1950, nine months after the onset of symptoms, she attended hospital. At that time there was slight conjunctival injection but no adhesions, superficial ulceration of the borders of the tongue and of the buccal mucosa and mild superficial ulceration of the vulva. In the ensuing months the ulceration of the mouth became worse and on one occasion an intact bulla was seen on the buccal mucosa.

In May 1951, when she was admitted to hospital, the right eye showed desquamation of the conjunctival epithelium with early subconjunctival fibrosis at the outer end of the lower fornix. The left eye showed only conjunctival injection. Superficial erosions of the tongue and buccal mucosa were still present.

By November 1951 adhesions had formed between the palpebral and bulbar conjunctiva of the right eye. White lacy scarring was present on the tongue and buccal mucosa and on the red margin of the lower lip, where it gave the appearance of lichen planus.

In April 1952 her right cornea developed several ulcers but these healed as a result of treatment in the Ophthalmic Department.

EXPLANATION OF PLATE.

FIG. 1.—*Case 1*: Superficial painless erosions of the sides of the tongue and a leukoplakic appearance of the remainder of the tongue.

FIG. 2.—*Case 3*: Right eye showing adhesions between the bulbar and palpebral conjunctiva.

FIG. 3.—*Case 4*: Vulva showing superficial erosions.

FIG. 4.—*Case 6*: The mouth with erosions on the hard palate and an intact bulla.

FIG. 5.—*Case 7*: Erosions inside the cheek, with an intact bulla at the anterior end and leukoplakic change on the tongue.



FIG. 1.



FIG. 2.

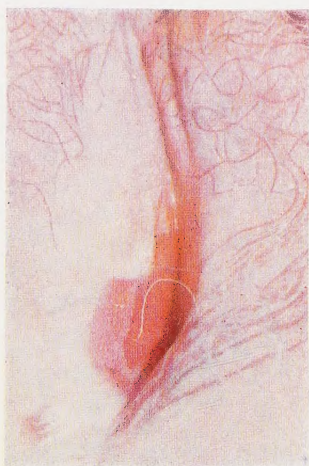


FIG. 3.



FIG. 4.

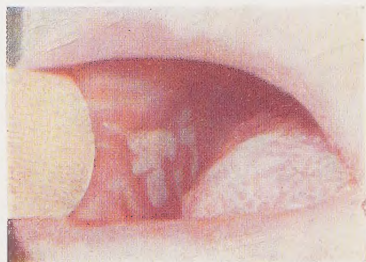
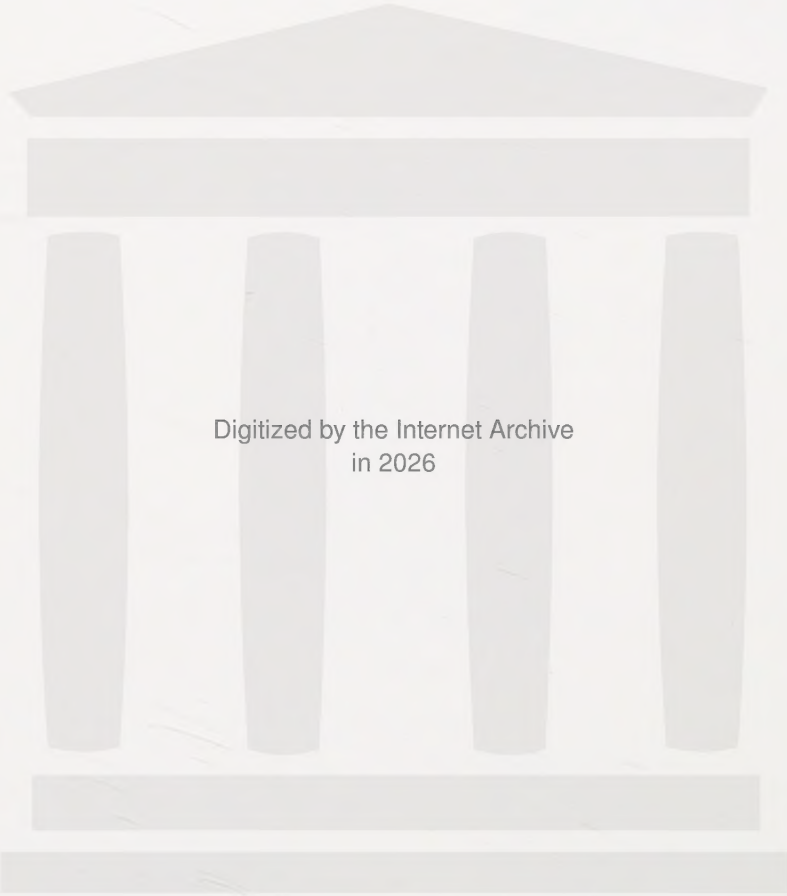


FIG. 5.



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Investigations.—(1952) W.B.C. 11,000. Blood W.R. and Kahn: negative. Potassium iodide 5 grains *t.d.s.* by mouth produced no exacerbation.

Treatment.—Liquor arsenicalis, liquor hydrarg. perchlor., sulphapyridine, Stovarsol, Enesol and local treatment with aureomycin had no effect. Aureomycin 2 g. daily by mouth produced a temporary but definite improvement in the mouth erosions only.

The condition has altered little since November 1951.

CASE 2.—*A woman aged 62.*

Eight years ago, coincident with the menopause, this patient developed soreness of the eyes, and six months later painful ulceration of the mouth. The following year she complained of scalding on micturition and soreness of the vulva.

In November 1949, five years after the onset of the disease, the patient attended hospital. At that time, she showed conjunctival injection and shrinkage with adhesions between the lower lids and bulbar conjunctiva in both eyes. Areas of superficial erosion were present on the sides of the tongue and on the buccal mucosa of the right cheek. There was also a white leukoplakic appearance of the tongue and the red margin of the lips. The vulval orifice was red with areas of superficial erosion, and the atrophic labia minora were bound down by adhesions. The patient showed no response to various treatments and the disease slowly progressed.

In November 1951 she was admitted to hospital. Adhesions now involved upper and lower lids in both eyes and there was marked photophobia. A superficial ulcer 1.5 cm. in diameter was present on the right side of the tongue and a similar one on the buccal mucosa. White linear scars affected the buccal mucosa, the sides of the tongue and the red margin of the lips, simulating lichen planus in some areas and leukoplakia in others. Erosions, adhesions and a leukoplakic appearance was still present in the vulva.

Investigations.—(1949) W.R. and Kahn tests: negative. (1950) Blood count; R.B.C. 5,300,000, Hb. 105 per cent. W.B.C. 8000; polys. 64 per cent, lymphos. 26 per cent, monos. 8 per cent, eos. 2 per cent. (1952) Potassium iodide 3 grains *t.d.s.* by mouth produced no exacerbation.

Treatment.—Aureomycin 2 g. daily improved temporarily the buccal erosions. Suramin, Enesol and local aureomycin have been ineffective.

The disease continues, with lesions unchanged in the last year.

CASE 3.—*A man aged 62.*

Five and a half years ago whilst serving in the Army he was treated for recurrent attacks of conjunctivitis. The conjunctivitis persisted and was complicated by contact dermatitis from penicillin and sulphonamide eye-drops; he was discharged from the army.

In January 1949, eighteen months after the onset, he attended hospital. At that time he was found to have severe bilateral conjunctivitis with adhesions between the bulbar and lower palpebral conjunctivae in both eyes. No other mucosae were involved until March 1949, when a nasal discharge and crusting of the nostrils was noted.

In December 1949 he complained of a sore throat and was found to have ulceration of the epiglottis and adjacent pharynx. This healed spontaneously but he had further attacks of ulceration of the throat in May and August 1950, in April 1951, and in November 1951, when he was admitted to hospital.

At that time the conjunctivae were injected and shrunken, both lower lids showed complete symblepharon and the upper lids were drawn down by adhesions to give an appearance of ptosis. There was marked foetor oris, and superficial erosions and strings of pus were visible on the posterior pharyngeal wall. The ulceration

extended to the epiglottis and to the left arytenoid mucosa, and an intact bulla was seen in this region.

The E.N.T. Surgeon (Mr. Cobb) reported the presence of atrophic rhinitis. During the patient's stay in hospital intact bullae were seen occasionally in the region of the fauces.

Treatment.—He was treated with aureomycin (2 g. daily) with little improvement, but when the drug was stopped there was a flare-up of the conjunctivitis and throat lesions which was not controlled by the administration of chloramphenicol, but gradually subsided when aureomycin was recommenced.

Fresh lesions continued to appear in the throat, but the aureomycin was gradually reduced and stopped without further relapse. Lesions were still present in the throat on his discharge from hospital in January 1952 but these gradually healed, and by August 1952 there were only very shallow erosions on the pharynx. Apart from the course of aureomycin, treatment has included subconjunctival cortisone (Mr. Nutt), Suramin and Enesol.

The condition of the eyes has changed little in the last two years but the buccal and pharyngeal lesions are at present slight.

CASE 4.—*A woman aged 67.*

Six years ago she developed soreness of the mouth and irritation of the vulva. Shortly afterwards blisters appeared on the labia majora, pubes and inguinal regions and these left extensive erosions after rupturing. A month later blisters appeared on the eyelids and there were recurrent attacks of epistaxis. During this time, the patient felt unwell and lost weight.

In September 1947 she attended hospital. At that time she had small intact bullae and erosions on the left lower eyelid, the vulva and groins, and a blister on the tip of the tongue.

She was admitted to hospital for treatment, and six weeks later was discharged free from skin lesions but complaining of irritation and excessive lachrymation of the eyes. She was seen by the ophthalmologist (Mr. Nutt), who reported that both right tear-ducts were blocked with scar tissue. Apart from continued discomfort with the eyes she had no other mucosal lesions until May 1948, when she had more vulval irritation and superficial erosions were found.

In March 1950 she again attended hospital with conjunctivitis of the right eye and shrinkage of the conjunctiva was seen. Intact bullae were present on the buccal mucosa together with superficial erosions.

In November 1951 both eyes were found to show conjunctival shrinkage and adhesions were present in the right eye. Erosions and an intact bulla were seen on the palate.

Investigations.—(September 1947) W.B.C. 9000. Polys. 64 %, lymphos. 24%, monos. 7%, eos. 5%. (January 1952) Potassium iodide 3 grains *t.d.s.* by mouth produced an acute exacerbation of the conjunctivitis and a fresh crop of lesions in the mouth.

Treatment.—Treatment has included aureomycin by mouth, penicillin and Suramin without benefit.

The condition remains active and has progressed little since November 1951.

CASE 5.—*A woman aged 75.*

This patient was first seen in 1948 with a history of pruritus vulvae of 12 years' duration. Typical changes of lichen sclerosus et atrophicus affecting the vulva and perianal region were found.

In October 1951 the patient complained of ulceration of the mouth which had been present for 9 months and followed the fitting of new dentures. Superficial erosions were present on the palate, and the posterior pharyngeal wall was reddened

but not ulcerated. Leaving out her dentures did not improve the ulceration of the mouth and the following month injection of the conjunctiva of the right eye was noticed.

Two months later adhesions had formed between the lower lid and the bulbar conjunctiva at the inner canthus of the right eye. The following month an intact bulla was seen on the palate. The vulva had become more uncomfortable, erosions being more pronounced than usual.

By March 1952 there was gross injection of the conjunctival vessels of the right eye with well-marked adhesions. The left eye was unaffected. On the palate a shallow erosion $\frac{1}{2}$ cm. across was seen. The labia minora had atrophied completely and the urethral orifice was obscured by adhesions. A well demarcated white indurated area with some follicular plugging extended $1\frac{1}{2}$ cm. around the anal orifice over the labia majora and into the inguinal folds.

The condition remains active and conjunctival injection has recently been seen in the left eye.

CASE 6.—*A woman aged 59.*

In 1946 the patient began to suffer attacks of ulceration of the mouth and at the same time had a rash on the scalp. The following year she attended hospital for investigation of the condition of her mouth and in 1948 she was referred to Dr. Doris Fletcher. She gave a past history of a severe illness consisting of phlebitis, jaundice and septicaemia in 1944 and "mumps" accompanied by choking fits in 1945.

When seen in 1948 she complained of recurrent soreness of the eyes. She was found to have patches of scaly erythema on the vertex of the scalp, the forehead and the abdomen resembling lupus erythematosus. There was bilateral conjunctivitis but no adhesions. Superficial erosions were present on the buccal mucosa, palate, pharynx and epiglottis. No other abnormal physical signs were discovered.

In 1949 intact bullae were seen on the soft palate and buccal mucosa, and on occasions small flaccid bullae were present on the edge of the erythematous lesions of the scalp.

In May 1950 a crop of bullae appeared on the left ankle accompanied by a flare-up in the mouth and eyes, vesicles being seen on the palate and fauces. The lesions of the scalp and forehead were healed at that time. Sulphapyridine (0.5 g. *t.d.s.*) was given and the bullae on the ankle resolved, but did not recur when the drug was stopped after a week on account of nausea.

Fresh crops of bullae were seen on the palate in June 1951 and on the scalp in August. Occasional superficial erosions of the perianal skin and vulva have been seen in the last year. Since the onset of conjunctivitis the patient had been under the care of an ophthalmic surgeon, who by division of adhesions and fitting of contact lenses had prevented much damage to the eyes.

In February 1952 the patient presented the following picture: Both eyes showed complete symblepharon and the wearing of contact lenses prevented obliteration of the fornices. There was superficial ulceration of the buccal mucosa and white linear scars gave an appearance of leukoplakia. Extensive scarred areas of alopecia were present over the vertex and islands of normal hair gave the appearance of pseudopelade. However, at the edges of the scarred areas erythematous crusted lesions were present which gave the impression of ruptured bullae; no intact bullae could be found.

Investigations.—(1947) R.B.C. 4,970,000, Hb. 98%. W.B.C. 13,100: Polys. 49%, lymphos. 46%, monos. 4%, basos. 1%. Blood W.R. and Kahn tests: negative.

CASE 7.—*A woman aged 79.*

Five years ago she first attended the hospital complaining of recurrent sores on the tongue and buccal mucosa. At that time superficial erosions were seen but no

leukoplakic change was noted. After observation for 4 months she was not seen again until November 1952, when she again attended with soreness of the mouth which had been intermittent since her first attendance.

On examination superficial erosions were present at the edges of the tongue and on the buccal mucosa and a marked leukoplakic change was observed on the tongue, gums and inside the cheeks. At the anterior end of the erosion inside the right cheek a vesicle was visible. No evidence of eye changes or involvement of other mucous membranes was found.

Blood W.R. negative.

DISCUSSION.

The predominance of females in this series (6 : 1) and the late age of onset (59-79, average age 67) corresponds with the figures given by other authors. In only two cases was the conjunctiva affected before other mucosae, and in one case the mouth and eyes became involved simultaneously. The remaining four cases had lesions in other areas for periods ranging from 5 months to 2 years before the conjunctivae were attacked and in Case 7 the eyes have not as yet become involved.

The picture presented by these cases during that interval was varied. In Case 5 soreness of the mouth was present for 9 months and occasional bullae were seen on the palate. There was a more acute onset in Case 4 of sores in the mouth and on the vulva followed by bullae on the vulva, in the inguinal region and on the eyelids. In Case 6 recurrent ulcers of the mouth were accompanied by a scaly erythema of the scalp with occasional flaccid vesicles which healed in some areas with scarring, thus producing a scarred alopecia. It was not until two years after the onset that the eyes were involved, enabling a correct diagnosis to be made.

Although the interval between the involvement of one mucous surface and another may be a matter of months or years, ultimately in all but one of the female patients conjunctivae, mouth and vulva were involved; the male patient, Case 3, showed lesions in the whole upper respiratory tract as well as the eyes, but the genitals were unaffected. The mode of spread and extent of involvement is shown in Table I.

TABLE I.

Case.	Conjunctivae.	Mouth.	Nose.	Genitalia.	Skin.
1	Onset	Onset	—	9 months	—
2	"	6 months	—	18 "	—
3	"	30 "	20 months	—	—
4	5 months	Onset	—	Onset	2-3 weeks
5	9 "	"	—	—	—
6	2 years	"	—	7 years	Onset
7	—	"	—	—	—

In five of these cases the disease has been active from 4-8 years, and in the sixth case the development of the disease has been watched while the patient was under observation for lichen sclerosus. Periods of quiescence have been

followed by exacerbations. Although its activity appears to lessen in the course of time, the ultimate prognosis depends upon the havoc caused by scarring, which is most serious in the eyes.

Treatment, which has included subconjunctival cortisone, local and oral aureomycin, Suramin, sulphapyridine, and Fowler's solution, has been completely ineffectual in staying the course of the disease. Temporary improvement of the oral lesions with aureomycin and exacerbation when it was withdrawn has been noted but no lasting benefit has followed its use. Potassium iodide by mouth produced exacerbation of symptoms in only 2 of 3 cases in which it was tried.

The diagnosis is difficult in the absence of conjunctival involvement, but in view of the good prognosis as regards life it is important to distinguish it from pemphigus vulgaris and certain diagnostic features are worth stressing. Oral lesions are most common on the sides of the tongue and on the adjacent buccal mucosa. Indolent shallow erosions form, and unlike aphthous ulcers and the lesions of pemphigus vulgaris they are remarkably painless and do not bleed. As the erosions heal lacy white scars form, and in two of our cases these ran on to the red margin of the lip simulating lichen planus very closely. Occasionally small bullae may be seen. This combination of erosions, white striae and bullae is seen in no other disease.

Lesions of the genitalia in both sexes commence as non-specific erosions, but the formation of adhesions and scarring is diagnostic of mucosal pemphigus. As with the mouth lesions, the erosions of the vulva seem singularly painless.

The skin eruptions are of two kinds, the first being found in this disease only. The lesion consists of a scaly plaque of erythema which scars as it heals and around the periphery of which are occasional bullae. The most common site is the scalp or face. The only comparable lesion is the scaly plaque of the Senear-Usher syndrome, but in that disease healing does not produce scars. The second eruption is non-specific, and consists of discrete bullae which appear on apparently normal skin but are usually localized to the neighbourhood of affected mucosae, i.e., the eyelids, face and groins. The most nearly comparable eruption is that found in dermatitis herpetiformis in children (Bowen, 1905).

The differential diagnosis between mucosal pemphigus and the other pemphigus eruptions may be confirmed by demonstrating histologically that the intact bulla of mucosal pemphigus is sub-epidermal. We have found that the technical difficulties of removing an intact bulla from a mucosal surface are very great, and although it is a valuable aid to diagnosis it may not be possible in practice.

The fact that mucosal lesions and conjunctivitis may precede skin lesions in pemphigus vulgaris and pemphigus vegetans by many months has probably led to much confusion in the past. Brocq (1919) records one patient with

eye involvement who developed *pemphigus subaigu malin* and died. One of Constans's (1927) cases is stated to have developed pemphigus foliaceus, but the eye signs recorded consisted of a mild conjunctivitis with nothing to suggest scarring mucosal pemphigus.

That dermatitis herpetiformis may give rise to mucosal lesions is known, but MacLeod (1915) commented on their rarity: Klauder and Cowan (1942) state that conjunctival adhesions may develop in dermatitis herpetiformis.

A case showing the usual eye changes of mucosal pemphigus with vesiculation of the nasal and buccal mucosa and a rash consisting of itchy vesicles and erythematous plaques on the chest and axillae was shown at the Royal Society of Medicine by Hare (1949). A diagnosis of dermatitis herpetiformis was supported by the histological finding of a sub-epidermal bulla and the fact that the cutaneous eruption faded after two weeks' treatment with sulphapyridine. But the histology is also that of mucosal pemphigus, and the freedom from skin lesions after cessation of sulphapyridine therapy is unusual in dermatitis herpetiformis. This case could well have been one of ocular pemphigus.

It seems possible that other cases recorded as dermatitis herpetiformis (Nicolas *et al.*, 1936; Koutseff, 1935) were cases of scarring mucosal pemphigus with a cutaneous eruption.

It is our belief that mucosal pemphigus is a disease entity completely separate from the other pemphigus diseases, and that it never undergoes transition to pemphigus vulgaris.

SUMMARY.

(1) The literature on ocular pemphigus is reviewed, and the main features of the disease found by other authors are discussed.

(2) 7 cases of ocular pemphigus are reported and the diagnostic features of their lesions on the mucosae and skin are described.

(3) Evidence from these cases and the literature is presented to uphold the conception that ocular pemphigus is a disease entity separate from all the other members of the pemphigus group and that it never ends by transition to pemphigus vulgaris.

Our thanks are due to Dr. Doris Fletcher for allowing us to see and describe Case 6; To Mr. A. B. Nutt for help with the eye lesions; and to Mr. J. H. Cobb for advice on the patients with nasopharyngeal lesions.

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THE SURFACE SKIN FAT IN SEBORRHOEIC DERMATITIS.

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THE term "seborrhoeic dermatitis" may not be universally acceptable, but in this paper it is applied to the group of patients who suffer from a heavily scaling and frequently oozing scalp, with infected fissures behind the ear and recurrent erythro-squamous eruptions in the centre of the chest and back. Blepharitis, sycosis and infections in the axillae are also present in many cases.

The concepts of the cause of this condition have altered from time to time. Once the amount of sebum was blamed, and later its chemical composition was thought to be at fault. The importance of the bacterial flora has also been the subject of controversy; but, as none of the organisms usually present on the skin in seborrhoeic dermatitis fulfills Koch's postulates, it seems probable that the bacteriology is less important than the underlying constitutional changes; that is to say, the fault may be in the soil rather than the seed. Little direct laboratory work has ever been done on this subject, and the concepts have only had the backing of clinical observation. The object of our work was to bring laboratory technique to assist clinical observation.

The first experiments we undertook were to measure the amount of fat on the surface of the normal skin, and to compare it with the quantity found on the skin of patients suffering from seborrhoeic dermatitis. As the fat mantle covering the skin is not uniform in thickness, it was necessary to compare the normal with the abnormal site by site, that is to say, the forearm with the forearm, the back with the back.

The second experiments were a study of the composition of the surface fat as far as technical considerations would allow, and the figures obtained from twenty normal people are compared with those obtained from twenty cases of seborrhoeic dermatitis. In view of the large amount of fat required for analysis it was possible to study only one area of the body. The central portion of the back was chosen for the investigation because this area has a high sebum level, and is frequently affected by this disease. All the subjects were post-pubertal, but pre-menopausal; this was particularly important because of the changes found to occur in the composition of surface skin fat after puberty (Washburn and Liese, 1953; Nicolaide and Rothman, 1953).

The normal subjects were required to have no dandruff, and no skin eruption at all, while the seborrhoeic subjects had to be suffering from the full and unquestionable picture of seborrhoeic dermatitis.

METHODS.

Several methods of investigating sebaceous activity have been used in the past and these have been studied and reviewed by us before (Hodgson-Jones and Wheatley, 1952). The sebum "level" (i.e., the amount of sebum covering 1 sq. cm. of skin) was determined in the following manner: Accurate demarcation of an area of skin was obtained by firmly placing a glass cylinder 3 cm. in diameter on the skin; 7 ml. of fat-free carbon tetrachloride was placed in the cylinder and allowed to remain in contact with the skin for sixty seconds. At the end of this period it was transferred to a clean tube by means of a teated pipette; the cylinder and area of skin were then washed with a further 3 ml. of carbon tetrachloride. This solution of sebum was filtered to remove scales and other suspended material and, after evaporating the solvent, the residual sebum was weighed on a microbalance.

Samples of sebum were taken in this way from various sites of the body, both from normal people and from cases of seborrhoeic dermatitis. We have found that when the sebum has been removed from the surface of the skin it takes a little over four hours to be replaced, but after this time a maximum level is attained, and no further increase in fat occurs however long the area remains uncleaned (Hodgson-Jones, MacKenna and Wheatley, 1952). It was this maximum level that we wished to measure and subjects were required to leave the area to be studied unwashed for at least five hours before the experiment.

Specimens of sebum for chemical analysis were collected by wiping the central part of the back with fat-free cotton-wool swabs moistened with carbon tetrachloride; the sebum was then extracted from these swabs by reflux distillation with chloroform. The solution was filtered and portions were set aside for the acid number and iodine number of the fat to be determined by methods already described (Hodgson-Jones and Wheatley, 1952). The percentage of cholesterol was determined by the Liebermann-Burchard method, and the squalene content by an iodometric method (Wheatley, 1953). An attempt was made to estimate the saponification number of the fat using a modification of the method used by Carrié (1949), but the results proved to be unreliable. The specimens were analysed at once because it was thought that the composition might alter during storage. It was considered important to show how reproducible our results were and so one subject was investigated on three occasions at weekly intervals; close agreement was obtained between the results on each occasion.

RESULTS.

The sebum levels of various sites of the body surface of normal people and of subjects with seborrhoeic dermatitis are given in Table I and frequency diagrams of some of these areas are given in Fig. 1.

TABLE I.—*The Sebum Level of Certain Areas of the Body in Normal Subjects and in Subjects Suffering from Seborrhoeic Dermatitis.*

Area of body.	Normal.				Seborrhoeic Dermatitis.			
	Number of subjects	Number of determinations.	Sebum level ($\mu\text{g./sq. cm.}$)		Number of subjects	Number of determinations.	Sebum level ($\mu\text{g./sq. cm.}$)	
			Range.	Average.*			Range.	Average.*
Fore-head .	17	22	82-340	206 ± 73	3	5	72-360	200 ± 125
Chest .	19	22	44-237	110 ± 57	14	24	31-254	113 ± 66
Back .	26	46	21-268	121 ± 64	15	36	21-380	149 ± 98
Abdo- men .	9	16	33-144	64 ± 33	12	14	21-104	56 ± 26
Axilla .	7	9	35-237	100 ± 61	8	10	51-173	87 ± 41
Arm .	36	54	23-146	49 ± 39	16	25	9-165	63 ± 40
Groin .	3	3	52-105	69 ± 31	3	4	11-92	59 ± 35

* The standard deviation of the mean is also given

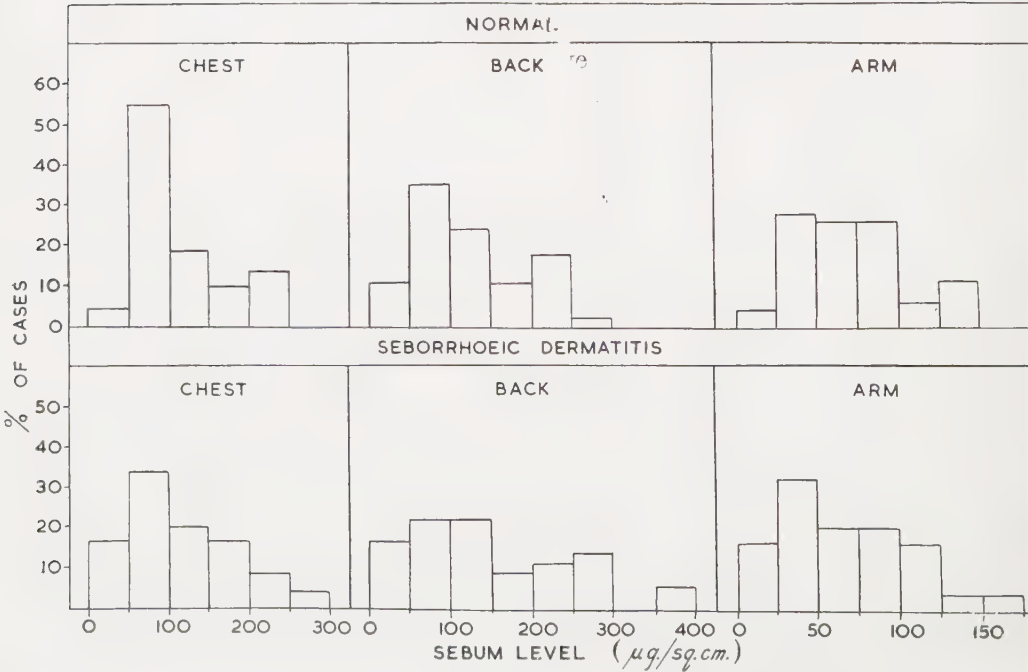


FIG. 1.

The figures obtained in the chemical investigations are shown in Table II and frequency diagrams of the acid and iodine numbers are shown in Fig. 2.

TABLE II. — *The Results of Some Chemical Determinations on the Sebum from the Back of Normal Subjects and of Subjects Suffering from Seborrhoeic Dermatitis.*

	Normals.		Seborrhoeic dermatitis.	
	Range.	Average.*	Range.	Average.*
Acid No.	24-75	44±15	14-66	44±16
Iodine No.	51-82	67±7	38-75	59±11
%Cholesterol	2.7-6.9	4.1±1.3	2.8-12.9	4.6±2.5
% Squalene	5.4-11.7	8.5±1.7	4.0-11.4	7.2±2.3

Calculated results :—

1. Cholesterol-squalene ratio	0.23-1.28	0.52±0.26	0.31-2.80	0.72±0.59
2. %Total unsaturated fatty acids	2.3-45.5	37.2±5.8	22.9-47.7	32.6±7.4

* The standard deviation of the mean is also given.

The total unsaturated fatty acids, expressed as a percentage of whole sebum, was calculated from the formula :

$$\frac{100}{90} (\text{Iodine Number} - (3.72 \times \% \text{ squalene} + 0.658 \times \% \text{ cholesterol})).$$

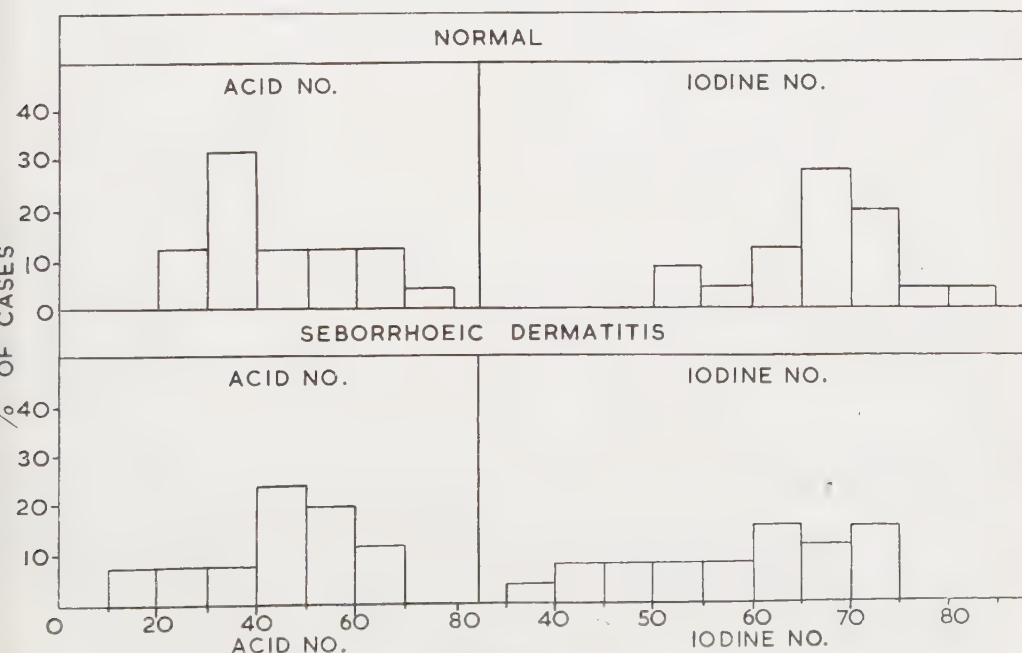


FIG. 2.

This makes the arbitrary assumption that the cholesterol and the squalene are the only unsaturated substances in the unsaponifiable fraction.

Table III shows the figure obtained on three different occasions at weekly intervals from one subject suffering from seborrhoeic dermatitis.

TABLE III.—*The Result of Chemical Analysis of Three Specimens of Sebum Collected from the Same Patient at Weekly Intervals.*

	1st.	2nd.	3rd.
Acid No.	55	42	51
Iodine No.	73	67	74
% Cholesterol	3.2	—	3.1
% Squalene	10.5	10.1	10.2

DISCUSSION.

It is clear that there are considerable differences in the amount of fat present on different parts of the skin. The forehead is found to possess the highest level, followed by the chest, back and axillae (the arms and legs are very much less greasy), and it is noteworthy that it is more greasy areas that are directly affected in seborrhoeic dermatitis. The average sebum level for most areas of the body is, however, no greater in the cases of seborrhoeic dermatitis than in the normal subjects. In fact, the figures for the sebum levels in seborrhoeic dermatitis tend to be rather lower than in normal subjects. There is however, some difference in the frequency distribution of the results (Fig. 1), which sometimes fall both below and above the normal range; the significance of this is so far not understood.

The main constituents of sebum are free fatty acids (about half being unsaturated), combined fatty acids (as glycerides, waxes and other esters), and unsaponifiable matter, of which about 15% is squalene. The acid number of sebum is a measure of the amount of free fatty acids present. The iodine number is a measure of the degree of unsaturation of the fat as a whole, and would be raised by an increase in the squalene content, and in the amount of unsaturated fatty acids (free or combined). The estimation of the acid number and the iodine number will therefore reflect any gross change in the composition of the fat. The percentage of cholesterol was estimated because of the general biological importance of this substance, and we also estimated the proportion of squalene as we are especially interested in the metabolism of this compound (MacKenna, Wheatley and Wormall, 1950). It is hoped to develop small scale methods of analysis so that the composition of sebum from small areas of skin can be examined. This will enable a more detailed study of the composition of the "fat mantle" to be undertaken. In the meantime, it is believed that the present methods will give definite, if not detailed, information about the chemical composition of the fat being investigated.

Our results show that the acid number of the fat is generally the same in our cases of seborrhoeic dermatitis as it is in the normal subjects, although it can be slightly lower than the normal level. The iodine number and squalene content are both lowered in seborrhoeic dermatitis, while the cholesterol content is raised and the cholesterol-squalene ratio is markedly altered. Calculation suggests that the total unsaturated fatty acids are lowered, and that the lowered iodine number is not only due to the low squalene content.

It appears that the composition of sebum as a whole is altered, and there is not a simple deficiency or excess of any one constituent. The figures suggest, in particular, a derangement of the metabolism of squalene and cholesterol, which Nicolaide and Rothman (1952) have recently shown to bear some relationship to each other. That this abnormality was fairly constant was shown by the three different investigations carried out at weekly intervals, which showed a remarkable constancy in the composition of the sebum. But it is not possible to decide at the present time whether these changes play a part in the cause, or whether they are part of a disordered metabolism which is the result of the disease process. In general, the results suggest a significant alteration of the composition of sebum and not of just one component.

SUMMARY.

1. The sebum in seborrhoeic dermatitis is compared with that from normal subjects, both quantitatively and qualitatively.
2. The quantity of sebum is found to be within normal limits, but the sebum differs in certain chemical properties.
3. The iodine number and squalene content are lowered while the cholesterol content is raised; the cholesterol-squalene ratio is markedly altered. The acid number is generally normal.
4. Calculation shows that the total unsaturated fatty acids are probably lowered, and the low iodine number is due to this as well as to the low squalene content.
5. These results suggest a derangement of the metabolism of sebum as a whole, rather than an excess or deficiency of any one component. It is not possible, at present, to say whether these changes play a causative role, or whether they are the result of a disordered metabolism caused by the disease.

We wish to thank Professor A. Wormall for the laboratory facilities, and for his helpful advice during the course of the work. One of us (I. S. H.-J.) is in receipt of a British Medical Association Research Scholarship.

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SKIN DISEASE IN THE BRITISH ARMY IN S.E. ASIA.* I: INFLUENCE OF THE ENVIRONMENT ON SKIN DISEASE.

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DURING the Second World War the high incidence of diseases of the skin among British troops in S.E. Asia caused such anxiety that a small R.A.M.C. research unit was sent to investigate this problem from 1947 to 1949. Most of the work was done in Singapore, but military posts in the rest of Malaya and in Hong Kong were visited. In this and the following two papers† an account is given of the more important results of the unit's investigations. Except where it is stated to the contrary, the subjects studied were British private soldiers and N.C.Os. Most of the observations were made before the activities of Communist guerillas necessitated the present scale of military operations in Malaya; many of the men studied were therefore living and working under peace-time conditions.

In Malaya and Hong Kong three conditions predominated, namely ringworm, tropical bullous impetigo and prickly heat: in Great Britain the last two do not occur, while ringworm, although not uncommon, is seldom as florid or as widespread as in the tropics. Since the causative agents of these diseases have nothing in common, environmental factors must play a large part in determining their frequency. The object of the present paper is to describe in detail the findings of our survey, to outline the main factors of the environment, and to discuss the relationship between them.

CLINICAL OBSERVATIONS.

Preliminary observations showed that information obtained from men who had reported sick with skin disease was misleading. For example, in one group of 75 men 43 cases (57%) of body ringworm were found on a routine examination; yet the records of the medical officer attached to this unit showed that

* The mycological data in these papers formed part of a thesis by one of us (J. C. S.) for the degree of M.D.Cantab.

† To be published in succeeding numbers of this Journal.

of these 43, only 17 had reported sick with skin disease at any time during the previous three months. It was clear that reliable figures would only be obtained by inspection of complete groups of men, in order to reveal unreported cases.

Accordingly, a series of inspections was carried out. Whenever possible groups of about 100 men were inspected, though in the case of some isolated units smaller groups had to be accepted. Efforts were made to see every man in the group, since it was thought that men who knew they had skin disease but had not reported it might try to evade inspection. A short history of past or present symptoms of skin disease was taken from each man, and note was made as to the duration of each man's service in the tropics and his occupation. The man was then examined stripped, in a good light, and skin lesions were noted on an outline diagram.

Diagnoses were based on clinical observations, using the following criteria:

Prickly heat.—The diagnosis was made on finding either a recent history of a "prickling" sensation (*not* itching) brought on by exertion, pressure, hot drinks or various other stimuli, or the typical rash. In most cases the symptoms and the rash were found together: sometimes, however, the rash was found without any symptoms being present at the time. Very occasionally a patient was seen who complained of the typical symptoms but in whom no rash could be seen.

Tropical bullous impetigo.—This was diagnosed on the presence of intact or ruptured bullae in the axillae, or less frequently in the crutch or on the waist, together with the short history (usually one to five days when seen). The bullae when intact contain serous fluid, which becomes purulent.

Ringworm of body or crutch.—The typical erythematous, scaling, slightly elevated and at times vesicular rings or plaques were readily diagnosed. In a few difficult cases the diagnosis was confirmed by the microscopic demonstration of hyphae in skin scales scraped from the lesion. Fungal material is so abundant in the lesions of tropical body ringworm that the chances of a case being missed by this method is remote.

Ringworm of the toes and feet.—The size of the initial survey precluded any detailed laboratory investigation. Consequently, in view of the known difficulty of the clinical recognition of *tinea pedis*, it seemed best to record all abnormalities of the skin of the toe-clefts, flexures and soles, ranging from the mildest degree of scaling up to gross maceration, scaling and vesicle formation, without making any assumptions as to their aetiology. This group was labelled "dermatoses of feet."

Table I shows the incidence of certain skin diseases among 1694 British soldiers and among smaller groups of A.T.S. and of Asiatic troops. These figures are derived from inspections of troops in Malaya (coastal plains) and in Hong Kong during the hot season (August and September).

TABLE I.

Disease	Incidence, %.			
	Male British soldiers (1694)	A.T.S. (122)	Ghurkas (31)	"L.E.P." (150)
"Dermatoses of feet" .	79.5	64.7	61.3	—
Body ringworm .	33.5	8.2	9.7	6.7
(corporis and cruris)				
Prickly heat .	28.0	13.9	0	—
Bullous impetigo .	8.1	0.8	0	—
Acne .	13.9	7.4	9.7	—
Non-bullous impetigo .	1.9	0	0	—
Scabies .	1.3	0	0	—

The figures in brackets following the categories of troops indicate the number in each category inspected. "L.E.P." = "Locally enlisted personnel"—mostly Chinese with a few Malays. The blanks in this column indicate that observations on the incidence of these diseases were not made.

These figures require some comment and explanation. Although no suggestion is made that all the cases of "dermatoses of feet" were suffering from fungus infection, evidence is presented in a succeeding paper (Sanderson and Sloper, 1953) that the incidence of *tinea pedis* in this series was not less than 50%.

The incidence of prickly heat makes it the third commonest skin disease among male British troops, but we believe that this somewhat exaggerates its importance. The figures were obtained by noting *all* cases of prickly heat, no matter how mild. Severe, incapacitating prickly heat was uncommon, and few men, apart from a small proportion in particularly unfavourable surroundings (e.g., cook-houses, and workshops and store buildings made of iron), suffered more than trifling inconvenience from it.

The importance of bullous impetigo, on the other hand, was rather greater than these figures suggest. Because of the situation of the lesions, in the axillae and the crutch, men affected suffered considerable discomfort, and were more likely to require medical attention than men with prickly heat.

Most of the cases of acne were relatively trivial, and would scarcely have excited comment in a parallel group of Europeans of similar age and sex in a temperate climate. In about 5% the disease is severe and disfiguring and may necessitate return to the United Kingdom. From a study of the histories of a few of these patients we believe that the disease is a severe form of *acne vulgaris*, and not a separate entity, since many such patients had had acne pustules and blackheads for many years in the United Kingdom before coming to the tropics.

In addition a few other conditions were encountered, the incidence of which was not accurately noted, either because they were rare or because they seemed of trivial importance. Thus *tinea versicolor* was common among male soldiers, both British and Asiatic, but appeared to cause no inconvenience. A mild

folliculitis of the buttocks was also seen from time to time among male British soldiers, but was symptomless. Trichinocardiosis axillaris also was common, and symptomless.

Phytids were not common, and we saw no cases of clothing dermatitis. These two conditions generally require hospital treatment at an early stage, and men so affected would therefore usually be absent from our parades. Both diseases were seen in the dermatological wards of the Military Hospital, Singapore, but we have no figures as to their incidence, which did not appear to us to be unduly high.

In contrast to the superficial coccal infections, such as the bullous and crusted forms of impetigo, few cases of boils or carbuncles were seen.

At the time of the survey very few cases of "jungle sore" were occurring, since most of the troops were engaged in garrison duties. Since the outbreak of Communist guerilla activities many troops have been engaged in jungle operations, and among these men jungle sores have been frequently seen by unit medical officers. We had no opportunity, however, of determining the frequency of this condition or of investigating it.

To sum up: fungus infection was the dominant condition, being found on the body of one man in every three and probably on the feet of at least one man in two. Prickly heat affected nearly a quarter and bullous impetigo about 8 per cent. of the men.

ENVIRONMENT.

(1) *Climatic Factors.*

Malaya has a maritime tropical climate. Singapore, at the southern tip of the peninsula, is in latitude $1^{\circ} 22' N.$, and Penang, the most northerly point at which clinical observations were made, is in $5^{\circ} 24' N.$ Over most of the peninsula the climate shows little variation: the mid-day temperature is $80-90^{\circ} F.$, with a high relative humidity and little seasonal change. Moisture-laden winds blow throughout the year—the N.E. monsoon from October to April, the S.W. monsoon from May to September. As a result rainfall is heavy throughout the year: in Singapore the average yearly total is 95 inches, almost evenly distributed throughout the twelve months, though November, December and January tend to be somewhat wetter than the rest.

The above statements apply to the coastal plains, where the vast majority of the population live. There are, however, some hill stations such as Cameron Highlands (5000 feet) at which the average maximum temperature ranges between $74^{\circ} F.$ in April and 70° in December; the relative humidity is, however, very high and the rainfall heavy.

In the coastal plains the dominant feature of the climate, so far as personal comfort is concerned, is the high humidity. On a hot summer's day in London,

with a maximum temperature of 85° F., a relative humidity of 35 to 45% would be expected during the hottest part of the day: the corresponding figure in Singapore, for the same temperature, would be between 70 and 80%. Under such conditions a European's skin is almost constantly moist unless air movement, which is normally slight, is artificially increased by such devices as fans. In the hill stations the temperature is not high enough to provoke sweating without considerable exertion, and the high humidity is not unpleasant.

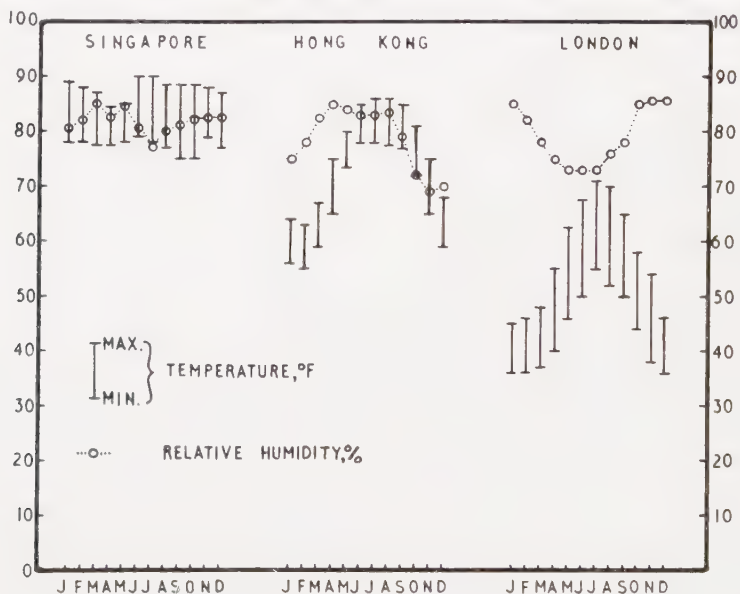


FIG. 1.

The climate of Hong Kong is different. During the summer it is a hot maritime climate, with high humidity and heavy rainfall: but for the rest of the year it behaves as part of a continental system, with a dry cool winter. As in the case of Malaya, there are two monsoons, the N.E. and the S.W., but whereas in Malaya these winds both come from great expanses of ocean, and both bring heavy rainfall, in Hong Kong the N.E. monsoon (October to April) comes from the land mass of China and is both cool and dry. The Hong Kong summer produces temperatures and humidities very similar to those found all the year round in Malaya. In October, however, both temperature and humidity in Hong Kong fall sharply; this change is associated with a conspicuous fall in the incidence of certain skin diseases.

Fig. 1 shows the monthly average maximum and minimum temperatures, and the monthly average relative humidity, for Singapore (Seletar, 1946), and Hong Kong (Royal Observatory, 1884-1938); for comparison, the corresponding data from the Observatory at Kew Gardens (1906-1935) are included*.

* Our thanks are due to the A.O.C., Far East, and to the Directors of the Observatories at Hong Kong and at Kew for these figures.

(2) *Non-climatic Factors.*

The three main non-climatic variables in the environment appeared to be accommodation, clothing, and occupation.

(i) *Accommodation.* Most of the units we observed in Malaya and Singapore were housed in modern barrack blocks. Some were in semi-permanent wooden huts, a few in *bashas* (light wooden huts with palm-thatch roofs), and a few in tents. All of these, except the semi-permanent wooden huts, were of open and airy construction, enabling the most to be made of any natural air movement. In Hong Kong the accommodation included on the one hand, permanent barrack blocks, and on the other, Nissen huts. Owing to the seasonal change in the Hong Kong climate, the huts had to be kept warm during the winter, and their construction would have made them unpleasantly hot during the summer, had it not been for the provision of ceiling fans. In this way conditions inside the huts were kept comfortable even during the hot weather.

(ii) *Clothing.*—Relatively little variation in clothing was found. The usual dress when on duty was as follows: cap, green open-necked shirt tucked into green ankle-length trousers, with a webbing belt at the waist, woollen socks and ammunition boots, and webbing gaiters at the ankle. Shirt sleeves were worn rolled above the elbow. The shirt was made of a cotton “cellular weave” material, but the trousers were of closely woven drill. A very few men wore light cotton vests and pants beneath shirt and trousers. In many units permission was given to go without shirts while within the barrack area. When off duty most men wore open-necked cotton shirts, long trousers of varying materials, woollen socks and sandals.

Clothing was laundered by Indians or, more commonly, by Chinese. Boiling water was used in one unit, but it was by no means universal, owing to the high cost of fuel. Socks, being woollen, were never boiled. There was no system of marking socks and they were often returned to the wrong man.

Sports clothing was communal, being drawn from the unit sports store and returned there after washing. Football boots were also communal, and were passed indiscriminately from one man to the next without being cleaned or sterilized.

(iii) *Occupation.*—Most of the units visited were infantry, engaged either in training, including route marches and jungle training, or in guard duties, which were seldom strenuous, but usually involved the wearing of the same clothes for at least 24 hours. In all units a proportion of the men did clerical work and led a relatively sedentary life.

Effects of variables in the environment.—These environmental factors were usually seen acting in conjunction so that it was difficult to assess their relative importance. Occasionally, however, it was possible to examine the effect of a single variable.

1. *Climate*.—The effect of climate on skin disease was seen in almost uncomplicated form in Hong Kong. During the hot weather the rates of the three major skin diseases are remarkably similar to those found all the year round in Malaya (see Table II), but with the onset of the dry cool weather these three diseases disappear almost completely until the next hot season. Table III shows the body ringworm rate, at weekly skin inspections, of an infantry company stationed at Hong Kong. Between the 30th September and 7th October the weather became rapidly cooler and drier, and this is reflected in the diminishing incidence of ringworm.

TABLE II.

Disease.	Incidence, %.	
	Malaya, all seasons (788 men).	Hong Kong, Aug.–Sept. (638 men).
Body ringworm	30	38
Bullous impetigo	10	8
Prickly heat	25	37

TABLE III.

	Aug. 19	Aug. 26	Sept. 2	Sept. 9	Sept. 16	Sept. 23	Sept. 30	Oct. 7	Oct. 14	Oct. 21
Number of men inspected	200	—	—	130	122	114	134	135	120	143
Number of new cases	—	—	—	—	15	7	14	10	5	2
Total cases	93	—	—	66	42	27	44	40	24	16
% incidence	46.5	—	—	50.8	34.4	23.7	32.8	29.6	20	11.2
Mean weekly temperature (deg. F.)	—	82.2	82.4	80.1	80.7	80.2	81.9	77.7	71.9	73.2
Mean weekly relative humidity (°o)	—	86.5	85.9	88.7	89.9	80.6	84.9	77.1	63.3	71.3

During the period covered by Table III the climate is the only factor whose variations need be considered, since the population, its housing and activities remained the same.

2. *Activity*.—An attempt was made to assess the importance of this by dividing the men seen at inspections in Malaya into an "active" group and an "inactive" group. The former included all men engaged in general infantry duties and the latter the relatively sedentary workers, such as clerks, batmen, drivers and cooks. The incidence of skin disease in the different groups was then worked out (Table IV).

Factors other than activity probably played little part in the distribution into the two groups: in particular, variations in accommodation and in hygiene conditions may be neglected since the proportion of "active" to "inactive" was similar in each unit.

TABLE IV.

Disease.	Incidence, %	
	Active (1000 men)	Inactive (420 men)
Dermatoses of toes .	81	74
Body ringworm .	34	34
Bullous impetigo .	9	9
Prickly heat .	29	28

Dermatoses of toes is the only condition for which a significant difference exists between the groups (standard error of difference = 1.4%). The exact diagnosis here must always be doubtful, and the additional 7% in the active group might well be accounted for by cases of maceration and peeling between the toes brought on by such non-mycotic agents as route marches.

3. *Accommodation*.—The men were divided into groups according to their accommodation (tents, *bashas*, or barracks), and the incidence of skin disease in these groups was determined. It is less easy in this case to be sure that accommodation is the only factor which is altering, since it affected the whole of a given unit, and interference by such things as local climatic conditions and standards of hygiene and discipline cannot be excluded. The results are shown in Table V.

TABLE V.

Disease.	Incidence, %.		
	Men in tents (80)	Men in <i>bashas</i> (134)	Men in barracks (1266)
Dermatoses of toes .	78	75	79
Body ringworm .	39	31	34
Bullous impetigo .	14	18	8
Prickly heat .	30	29	29

It will be seen that only the slightest differences exist among the three groups for all diseases except bullous impetigo. Here the difference between men in barracks and men in *bashas* is significant (standard error of difference = 3.4%). That between men in tents and men in barracks is not significant, but if tents and *bashas* are reckoned as one group, the incidence of bullous impetigo is significantly greater than in the group in barracks (standard error of difference = 2.6%).

Effect of variables in the population.—The male British troops constituted a homogeneous group, but varied widely in one respect—the duration of their stay in the tropics at the time of inspection. Two other, much smaller, populations were observed: a group of Asiatic soldiers and a group of English service women.

Details of the duration of tropical service were recorded in 1447 men. These men were then divided into groups, according to the length of their stay in the tropics, and the incidence of various diseases in each group determined (Table VI).

TABLE VI.

	Duration of tropical service (months).										
	0-1.	1-2.	2-3.	3-4.	4-5.	5-6.	6-9.	9-12.	12-18.	18-24.	24+
Number of men .	50	58.	54	88	106	103	142	157	69	301	325
Dermatoses of toes, % .	74	83	91	82	71	76	79	85	83	75	79
Body ringworm, % .	0	23	46	65	46	41	49	34	23	25	23
Prickly heat, % .	4	26	37	34	54	43	35	38	32	19	20
Bullous impetigo, % .	0	12	19	6	12	6	13	10	13	8	6

These figures show that whereas the incidence of dermatoses of toes and of bullous impetigo do not change, those of body ringworm and prickly heat start from low figures, rise to a maximum in the fourth and fifth month respectively and then decline, though never reaching their original low level. This suggests that some factor comes into play after a man has been in the tropics for about four or five months, which reduces the likelihood of his having the two latter diseases. The effect might be due to the development of some form of immunity, or to more experience in caring for the skin in a hot humid climate. These possibilities are considered in greater detail later.

Racial factors.—Comparatively little attention was paid to skin disease among Asiatics, since the main object of our work was to investigate, and if possible reduce, skin disease among British troops. However, in the last two columns of Table I are shown the results of inspection of a platoon of Ghurkas and of a somewhat larger body of locally enlisted men. The figures for body ringworm for both units are significantly lower than the rate for male British soldiers, in spite of the small numbers involved. This result cannot be taken as more than a suggestion that a racial factor may be involved, since no direct comparison with Europeans under the same conditions of activity and accommodation was possible. Moreover, the organisms responsible for body ringworm in the two groups were probably not the same. Such figures as were obtained for other diseases were not significant. It may be remarked, however, that it was the experience of R.A.M.C. officers having care of Asiatic troops that both prickly heat and bullous impetigo were extremely uncommon among them.

Skin diseases among European women.—The second column of Table I refers to a skin inspection of 122 A.T.S. auxiliaries engaged on administrative work.

If the conventional tests for statistical significance are applied, the incidence of disease is found to be lower among the A.T.S. than among male British troops for every skin condition studied. It would be rash to conclude from this that there is some specific physiological difference which causes females to be less prone to skin disease than males. The A.T.S. were better housed, wore lighter clothing and had a higher standard of personal hygiene than the men, and it seems likely that one of these factors or a combination of them played a more important part than any sex differences.

DISCUSSION.

The prevalence of these three diseases in the Far East has been known for many years. Ringworm (*Kourap*) and prickly heat (*sudamina seu papulae rubentes*) were both probably described by Bontius (1642), who noted that they were commoner among recent arrivals in the tropics than among established residents. Tropical bullous impetigo was recognized by Manson (1898); Castellani and Chalmers (1910) and later Hughes (1938) showed that it was due to infection with *Staph. pyogenes aureus*. The present communication shows what a serious problem these diseases can be among Europeans living in a hot and humid climate.

That this climate is a major factor in causing such high rates of skin disease seems hardly open to doubt; the spontaneous disappearance of ringworm, prickly heat and bullous impetigo in the Hong Kong winter points strongly to this. Many other workers besides ourselves have reached the same conclusion; in particular Horne (1952) has shown how quite small variations in temperature and humidity can produce large changes in the incidence of prickly heat and bullous impetigo in Europeans in a hot moist climate. The problem requiring study, therefore, is not whether the climate causes increased incidence of these diseases, but how it does so.

Prickly heat.—It has long been recognized that prickly heat occurs only in subjects who sweat profusely for weeks or months on end, and Shelley and Horvath (1950) have recently shown that damage to the skin's surface by a wide variety of agents (of which sweating may be one) can contribute to the blocking of the sweat ducts found in this condition. It would seem reasonable to expect the incidence of the disease to vary according to the standard of accommodation or the degree of activity. We were unable to show any such effect; it is possible that variations in these factors were insufficient to modify appreciably the influence of the climate.

Our results suggest that factors other than climatic were also involved. The gradual diminution in incidence of the disease with length of tropical service after the peak in the fifth month suggests some change in the behaviour, either of the subject as a whole, or of his skin. Among Asiatics, as has already been pointed out, prickly heat is uncommon. For a given heat stress, an

Asiatic secretes about 30% less sweat than a European (Eijkman, 1924), and since the number of sweat glands per unit of skin is the same in both (Eijkman, 1924), it is clear that the lower rate of total secretion in the Asiatic is the result of a diminished rate of secretion by individual glands. Eijkman inferred that the glands in Asiatics were adapted to the hot climate, and it is possible that the relative freedom from prickly heat enjoyed by those races is partly due to this. Whether any such adaptation occurs in Europeans during their residence in the tropics is not known.

Ringworm. -In the case of a parasitic disease such as ringworm, the environment may influence the disease by affecting either the host or the parasite. In particular, factors affecting the dissemination of the fungus must be considered.

Influences which affect the host presumably do so by altering his resistance. The known processes which protect the skin from infection with fungi fall into two main groups: firstly, the secretion in the sweat of fungistatic substances, and secondly, processes depending on the activity of the cells of the epidermis. Fungistatic substances in sweat have been studied by Peck and his co-workers (1939); they showed that an acid reaction was required if these substances were to be effective. We were able to confirm their observations. Neutralised thermal sweat from British soldiers was concentrated by evaporation, and added in varying amounts to Sabouraud's broth which had been inoculated with *Trichophyton mentagrophytes*. The final pH was between 5 and 6. In twenty experiments the total content of sweat solids required to prevent growth of the fungus varied between 6.3 and 13.8 g./100 ml., the mean value in all the experiments being 8.9 g./100 ml. The mean solid content of the sweat before evaporation was 0.65 g./100 ml.; to provide an effective fungistatic concentration on the skin, therefore, sweat would have to be concentrated by evaporation about fourteen times. Whether evaporation of this order commonly occurs is not known, but clearly it is much less likely in the humid atmosphere of Malaya than in the dry heat of Egypt, where ringworm is much less prevalent among British troops (Professor J. R. Squire, personal communication).

Sabouraud (1899) suggested that desquamation must be an important defence of the skin against fungi. Sweating causes maceration, which presumably impedes desquamation.

The combination of profuse sweating and insufficient evaporation encountered in the humid tropics might therefore be expected to impair some of the skin's defences against fungi, and thus might favour the prevalence of ringworm. Conversely, where the rate of sweating is diminished, as, for example, among Asiatics and possibly among acclimatized Europeans, a lower incidence of ringworm might be expected. Our observations are consistent with such an hypothesis.

An acquired local immunity against dermatophytes has been demonstrated in man by Greenbaum (1924) and by Epstein and Grünmandel (1930). The organisms used in both these investigations were *Trichophyton mentagrophytes* and *T. quinckeanum*. We attempted to repeat these experiments, but were unable to demonstrate any acquired immunity. An experimental infection with *T. mentagrophytes* was produced on the skin of one of the authors and healed spontaneously in eighty days. A second application of a culture of the fungus at the same site then produced a second lesion without difficulty. However, it should be pointed out that relatively enormous amounts of fungus material were being used, and a local immunity against smaller inocula cannot be excluded. If any such immunity developed in our subjects it might account for the falling rate of body ringworm among men who had been in the tropics for more than six months.

The environment may also exert an effect on the parasite, as distinct from the host. Non-pathogenic moulds flourish in the humid tropics, and it is possible that under these conditions dermatophytes also exist in large numbers outside the host, thereby causing a high rate of skin infection. Little is known on this subject, since dermatophytes are difficult to isolate from inanimate material; but on two occasions we were able to isolate *T. mentagrophytes* from the clothing of infected subjects. Recently, however, Vanbreuseghem (1952*b*) and Gordon, Ajello and Georg (1952) have shown that dermatophytes can be isolated from soil, and Emmons (1951) and Vanbreuseghem (1952*a*) have suggested that an important part of the life cycle of many pathogenic fungi (including the dermatophytes) may take place in soil. This new concept and the techniques which have led up to it are likely to shed fresh light on the whole of this problem.

The epidemiology of tropical bullous impetigo has been studied in some detail by Dr. J. R. May, and will not be described at length here. The disease is due to infection with coagulase-positive staphylococci. Like prickly heat and body ringworm, it is profoundly affected by climatic changes, and it is probable that this is partly due to a diminished power of the skin to resist invasion in a hot and humid climate. It appears, however, that several strains of staphylococci found in Malaya, unlike those encountered in this country, may have the specific power of producing bullae and to their presence, as much as to any change in skin resistance, the special character and distribution of the disease are possibly due.

Our work has confirmed the prevalence of these three diseases in the Far East. In spite of their varied aetiology, they have in common a predilection for the unacclimatized European. We suggest therefore that there is an urgent need for studies of the acclimatization of European skin to a hot and humid climate, particularly as regards resistance to invasion by staphylococci and dermatophytes. A very suitable station for such work would be Hong

Kong, where changes in climate and disease incidence are marked and predictable.

Our thanks are due to Professor J. R. Squire and Dr. J. T. Duncan for help at all stages of the investigation; to Professor G. W. Pickering and Dr. H. B. May for help with the manuscript; to the technicians of the Dermatological Research Team, R.A.M.C., for their technical assistance; and to the Director-General, Army Medical Services, for permission to publish this paper.

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LEISHMANIDE: REPORT OF A CASE.*

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ALLERGIC skin affections due to cutaneous leishmaniasis have received thus far little, if any, attention in the literature. In 1940 I described a special form of a disseminated cutaneous leishmaniasis, probably produced by haematogenous route, which I termed *leishmanide*. A 12½-year-old girl with leishmaniasis recidiva of 6 years' duration suddenly developed an asymptomatic papular eruption on the face and extremities. Histological examination showed a typical tuberculoid structure, but clinically, roentgenologically and immunologically there were no signs of tuberculosis. The leishmanin test was strongly positive. The eruption lasted 1½ years, and faded completely after treatment with small doses of sodium aurothiomalate.

I recently had the opportunity to observe another even more striking example of a leishmanide.

REPORT OF A CASE.

An 8-year-old girl, an immigrant from Aleppo, Syria, was first seen in the dermatologic clinic of the Municipal Hospital Hadassah in January 1947 because of a typical leishmaniasis recidiva of the face (Fig. 1). On the right cheek there was an atrophic area 4 by 3 cm. in diameter, which contained a number of pin-head to match-head-sized pinkish papules. The periphery was occupied by an almost continuous ring of closely aggregated tiny papules. Near the medial edge an isolated



FIG. 1.

* Read at the Tenth International Congress of Dermatology in London, July, 1952.

pustule was present. On the lower part of the nose there was a similar scar encircled by papules arranged in arcs. Diascopic pressure disclosed apple jelly colour. Mantoux tests with dilutions of 1:10,000 and 1:1,000 were negative; a culture for tubercle bacilli was negative. An intradermal test with leishmania vaccine elicited a strongly positive reaction. Treatment with electrocoagulation was refused. Two doses of roentgen rays, 200 r each, were administered without any effect.

The child has been seen at intervals during several years. The disease altered in that pustules which in the beginning were only occasionally present increased in number and sometimes dominated the clinical picture. Some of them changed into crusts and persisted for weeks and even months. After removing the crusts ulcers remained.

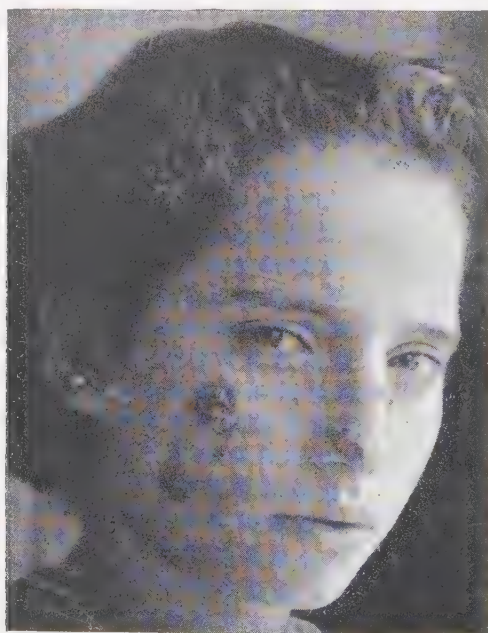


FIG. 2.

In January 1951 the patient visited the clinic with a new eruption which had started suddenly two weeks previously and rapidly spread, involving symmetrically mostly the uncovered parts of the body, the forehead, face, especially in the vicinity of the leishmaniasis, the neck, the anterior aspects of the hands and forearms and the areas adjacent to the knees (Fig. 2). The eruption was non-pruritic, fairly uniform, and consisted of numerous discrete, hemispherical, soft pin-head to match-head-sized skin-coloured or pinkish papules. On diascopic pressure they had a yellowish-brown colour. On the face the papules looked like acne, but the skin was not oily and there were no comedones. The eruption was essentially unchanged two weeks later. Most papules were smooth, and some showed on close inspection slight umbilication, while others had a fine scaling.

Histological examination made by Dr. M. Loewenthal disclosed a tuberculoid structure (Fig. 3). The epidermis showed slight hyperkeratosis. The papillary

body showed tubercle formation in some places, and in these places the papillae were flattened. The tubercles were composed of lymphocytes, histiocytes, fibroblasts, epithelioid cells and occasional giant cells of Langerhans type. There were accumulations of lymphocytes around the tubercles. In the deeper portions of the cutis, near the subcutis, tubercles were found which were distinctly arranged about the vessels. Some tubercles showed early central necrosis. Sections stained with Gram and Giemsa failed to show organisms.

Again, clinical and x-ray examinations showed no evidence of tuberculosis. An intradermal test with leishmania vaccine in dilution of 1 : 1,000,000 led within 24 hours to a massive swelling and an erythema which remained visible for a week. The diagnosis of leishmanide was made and no treatment was given. The eruption remained unchanged for a month, and then within a further month it gradually subsided, leaving no trace. The condition of the leishmaniasis recidiva remained static.

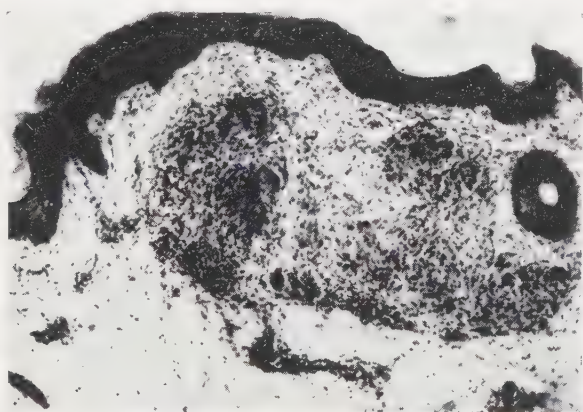


FIG. 3.

COMMENT.

This case is interesting for two reasons : First the transformation of a common type of leishmaniasis recidiva into a pustular form ; and second the sudden development of a disseminated papular eruption, which I call leishmanide. Although the initial and the main lesions of recurrent leishmaniasis are small, flat reddish-brown or copper-coloured deep-seated papules which usually persist almost unchanged for years, several other features were observed and among them a pustular form. The pustules arising from papules or from normal skin were transformed into crusts which persisted for months. After removing the crusts ulcers remained, which eventually became crusted again.

It may be asked whether this suppuration stands in causal connection with the appearance of the leishmanide in analogy with the more frequent occurrence of an epidermophytide after suppuration of epidermophytosis. I believe that this is not the essential cause. In the first leishmanide I observed there was

no suppuration of the recurrent leishmaniasis. Furthermore, in the ordinary leishmaniasis which nearly always undergoes ulceration no leishmanide has been encountered as far as I know. The occurrence of leishmanide in persons with leishmaniasis recidiva can be explained by the fact that they possess a high degree of leishmania allergy. The test with leishmania vaccine is frequently strongly positive, as it was in my cases.

Sagher (1947) worked with different concentrations of leishmania vaccine, and found that patients with leishmaniasis recidiva showed a much higher degree of sensitivity than those with ordinary leishmaniasis (positive response in dilutions of 1 : 100 to 1 : 10,000 in ordinary leishmaniasis compared with 1 : 10,000 to 1 : 10,000,000 in the recurrent type). It can, therefore, be assumed that similar or less pronounced papular eruptions of the type of leishmanide may occur in the course of recurrent long-standing leishmaniasis, but may escape recognition owing to their spontaneous, asymptomatic and transient character.

SUMMARY.

Another case of a leishmanide is reported which occurred in a 12-year-old girl with leishmaniasis recidiva of many years' duration.

The opinion is expressed that similar allergic reactions may be encountered in other cases of leishmaniasis recidiva showing a strongly positive reaction to leishmania vaccine test.

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LICHEN SCLEROSUS ET ATROPHICUS IN YOUNG SUBJECTS.*

THERESA KINDLER

THE majority of cases of lichen sclerosus (from now on referred to as L.S.) occur in women at or beyond the menopause. The condition is supposed to be extremely rare in children, especially in its ano-genital manifestations. Montgomery and Hill (1940) in their monograph found in a survey of thirty-eight female cases only one girl often suffering from the disease. The average age of their female patients was fifty years. From reports of fifty-four other cases which appeared in the literature of the last twelve years, I found that the average age of the fifty-one female cases was forty-five years. In only eight of these patients the disease began between the ages of four and eleven years. Four of these had only cutaneous lesions, and in the other four the ano-genital region alone was involved.

In view of the infrequent reports of L.S. in children, it may be of interest to record eight cases, six of which have been seen at the Skin Departments of the Hospital for Sick Children and the London Hospital. For the two remaining patients I am indebted to Dr. W. P. Elford and Dr. I. Muende. All but one of these patients have been under observation for periods between three and seven years.

A number of children with vulval lesions which morphologically and histologically suggest L.S. have been reported under a different diagnosis. Ketron and Ellis (1935) reported the case of a girl aged eight under the title of leukoplakia. They regarded this condition as identical with kraurosis and considered its similarity to scleroderma. In the latter condition they apparently included L.S. Ginsberg (1939) presented a similar case as leukoplakia or scleroderma. Wigley showed a child of seven with ano-genital changes since the age of four. Though he considered the diagnosis L.S., he called the condition kraurosis because of the shrunken labia minora. Gougerot (1942) expressed the view that scleroderma is the cause of, or identical with, several genital conditions, such as balanitis xerotica obliterans, kraurosis and leukoplakia. The characteristics of these conditions will be discussed in the differential diagnosis.

Lichen sclerosus et atrophicus was first described by Hallopeau in 1887, and Darier (1892) issued the characteristic histological description. The

* Read at the Tenth International Congress of Dermatology in July 1952, and dedicated to Professor Leopold Artz on the occasion of his 70th birthday.

classification of the condition has been the subject of much controversy, which has flared up again in recent years.

The original theory put forward by Hallopeau and Darier that L.S. is a variety of lichen planus still has its advocates, as expressed quite recently by Wise and Sulzberger (1937), McCarthy (1931), Lapière (1948) and others. They base their opinion clinically on the similar distribution, the plane primary lesion, the tendency to coalesce, and on the fact that a few cases have been described of L.S. with lichen planus lesions on the mucosa of the mouth. Histologically their theory depended on the similar changes in the epidermis and the frequent presence of a band-like infiltrate, which is, however, not subepithelially situated as in lichen planus, but separated from the epidermis by a homogenous oedematous zone of connective tissue.

Another view held by Unna (1894), Ehrmann and Brunauer (1931), MacLeod (1904) and many others that L.S. belongs to the group of circumscribed sclerodermas has been accepted by many dermatologists. It has been supported by the frequently close clinical similarity and by cases in which both disorders have co-existed in the same patient. The histological changes in both conditions affect primarily the connective tissue.

A third opinion, that L.S. is an entirely separate morbid entity, was first favoured by Kyrle (1925). More recently Miescher (1935), Kogoj (1934), Montgomery and Hill (1940), and Gonin (1945) emphasized the distinct clinical picture and pathological changes of the condition which differ from both lichen planus and scleroderma. These authors do not however, agree in all details. Miescher speaks of a *sclerotic* sub-epidermal zone and of the *destruction* of the elastic tissue in this area and within the infiltrate. Montgomery and Hill maintain that there is no true increase of connective tissue, and that sclerosis is only simulated by the extensive oedema and the hyalinized collagen fibres. The papillary elastic tissue is not destroyed, but pressed down to a lower level by the oedema.

Lutz (1946) in a recent paper reports his findings in a series of his own cases and a critical survey of the literature. According to him there are two types, both of which show the typical histological features of L.S. In the first, as described by Miescher, the elastic tissue of the upper cutis has completely disappeared, while in the second, conforming with the views of Montgomery and Hill, the elastic fibres are present, but separated by the oedema from the papillary bodies.

Miescher prefers the name *Weissfleckenkrankheit* (white spot disease), which was previously used to include a variety of conditions. Montgomery and Hill retain the name L.S., since most American writers identify white spot disease with guttate scleroderma. A full account of the literature up to the date of their appearance is given in the two last-mentioned papers.

The clinical picture of L.S. is well known. The sites of predilection are the

neck, upper parts of the trunk, the flexor surfaces of the wrists and the anogenital region, but lesions may appear almost anywhere. Lesions of the mucous membrane of the mouth have not been observed except in a few cases. The small, flat white elementary papules exhibit as a rule one or more horny plugs. They are slightly raised or at skin level and a superficial infiltration is palpable. They remain discrete, or coalesce to form well defined plaques in which the individual lesions often retain their outline and so produce a mosaic-like effect. Sometimes there is bullous detachment of the epidermis. In the course of involution the surface becomes atrophic and wrinkled and there are tiny depressions instead of plugs. The vulval lesions are bluish- or chalk-white spots or papules. The vulva alone may be involved, but more frequently the changes extend to the perineum, anal region and gluteal folds. Follicular plugging may here not be seen clinically, but is mostly present histologically.

The histological changes in the fully developed lesion affect the epidermis and cutis. There is diffuse hyperkeratosis with keratotic plugging of follicles and of the openings of the sweat ducts. There is atrophy of the stratum Malpighii, hydropic degeneration with loss of pigment of the basal layer, and disappearance of rete pegs and papillae. In the cutis the most striking feature is an ill-stained, homogenized sub-epithelial area with scanty nuclei and widely dilated lymph vessels. Beneath this zone in the mid-cutis there is a mainly lymphocytic infiltrate, which may be dense and band-like or in older lesions scanty and more focal. The elastic fibres disappear in the homogeneous zone and in the infiltrate, but they and the collagen are fairly normal in the lower part of the cutis. There are no obliterative changes in the deep vessels. The sweat glands are normal or dilated. Follicles and sebaceous glands are often fairly normal but we found atrophy in the labium majus in an advanced case.

Three illustrative cases are now reported in detail.

CASE REPORTS.

Case 1.—This girl was first seen at hospital at the age of six years with a history of vaginal discharge and irritation since she was two. The mother was not aware of the vulval changes and does not know when they started.

On examination (8.x.46.) she was a well-developed, placid child. The general examination revealed nothing abnormal. Skiagrams of the sinuses and chest were normal. Tuberculin tests, blood W.R. and Kahn test were negative.

On the inner surfaces of the labia majora there were numerous coalescing, slightly infiltrated white spots which gave the vivid red mucous membrane a mottled appearance. In some of the lesions a central punctate depression could be seen. There was some discharge and inflammation of the vaginal orifice.

Her vulvo-vaginitis and irritation cleared up under treatment but the white spots gradually extended and coalesced to produce a uniform white discoloration of the inner surfaces of the labia majora, which was sharply defined at the muco-cutaneous margin. The condition eventually involved the greater part of the vulval surface and the perineum, but did not extend to the anal region. The labia minora were very small. The cutaneous surface remained free.

Treatment with oestrogens locally and internally, cortisone ointment, vitamin A, D₂ and E was unsuccessful. Her menstruation, which started in August 1951, produced no change. The originally striking white discoloration has now assumed a less conspicuous ivory colour. There has been a gradual shrinkage of the labia minora,



FIG. 1.—Case 1 at age of 10 years. Chalk-white discoloration involving almost the whole vulva. Discrete lesions on perineum. Labia minora disappeared; shrinkage of clitoris.

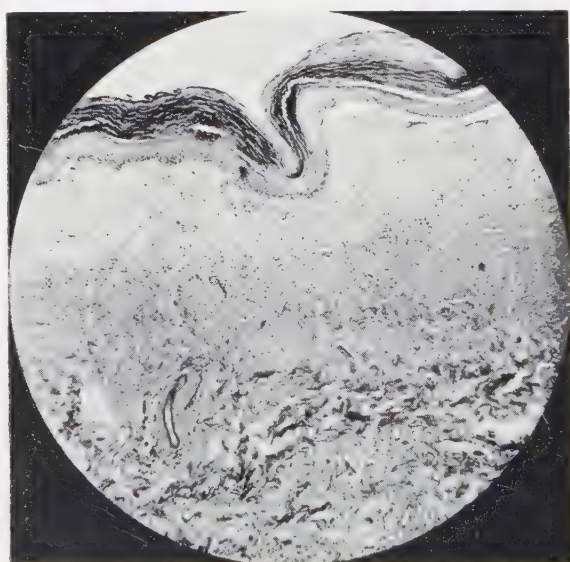


FIG. 2.—Case 1. Section from inner surface of labium majus. Zone of sclerosis with scanty infiltrate in mid-cutis. The lower part of cutis is normal. Elastin stain. $\times 30$.

clitoris and frenulum which have now, at the age of thirteen, practically disappeared (Fig. 1). The vaginal orifice seems to be of normal width. There is no irritation or discomfort now.

Histology.—(Inner surface of right labium majus, 4.xi.50) (Fig. 2). There is hyperkeratosis extending into a dilated follicle. The granular layer is thin in some places, consisting of several rows in others. The stratum Malpighii is atrophic. There is hydropic degeneration and loss of pigment of the basal cells. The rete pegs and papillae have largely disappeared.

The cutis is separated from the epidermis in long clefts. Beneath the epidermis is a broad, oedematous, poorly stained zone with scanty nuclei. The capillaries and especially the lymph spaces are widely dilated. There is much extravasation of red blood cells in this area.

In the mid-cutis is a zone of closely packed sclerotic collagen bundles with a scanty diffuse and focal infiltrate consisting of lymphocytes and plasma cells. The elastic fibres have disappeared from the oedematous and sclerotic zones, but they and the collagen are normal in the lower cutis.

There are no changes in the deep blood vessels. The sweat apparatus shows cystic dilatation. Hair follicles and sebaceous glands could not be found although a number of sections were examined.

Case 2.—This patient was shown by Dr. R. T. Brain at the Annual Meeting of the British Association of Dermatology in July 1949 at the age of 7, with cutaneous manifestations of L.S. He wrote that she was a highly strung girl and apt to be hysterical. Her general health was good, and family and past histories were irrelevant. The eruption had been present for one and a half years.

Her clinical examination, chest skiagram, blood count and urine revealed nothing abnormal. Mantoux 1:1000 was positive. W.R. and tuberculin jelly test were negative. She had a number of typical pearly-white plaques on the neck, in the left axilla, on the back and on the abdomen. There was extensive keratosis pilaris on the back, flanks and upper arms. The histology of the lesion on the neck had the characteristic features of L.S.

She was treated with vitamin A and vitamin E orally, and with keratolytic ointments and cortisone cream, but the lesions increased in number and size. The two excision scars on the neck and abdomen became sclerotic and pearly white and

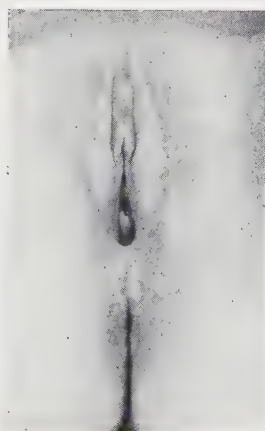


FIG. 3.—Case 2. Bluish-white, sharply defined discoloration of inside of labia majora. Discrete and coalescing lesions on clitoris, preneum, and around anus.

showed a papular pattern with follicular plugging. The lesion on the neck received x-ray treatment, but did not respond.

She then failed to attend for some time. When she reported again on 22.1.52 (aged 10) the mother stated that she had had recurrent attacks of blisters on the vulva during the past year. There was some discomfort while the blisters were present.

Examination revealed a sharply defined bluish-white discoloration of the inner surface of the labia majora (Fig. 3). The surface showed a fine atrophic wrinkling and was soft to the touch. There were numerous white lesions on the clitoris and in

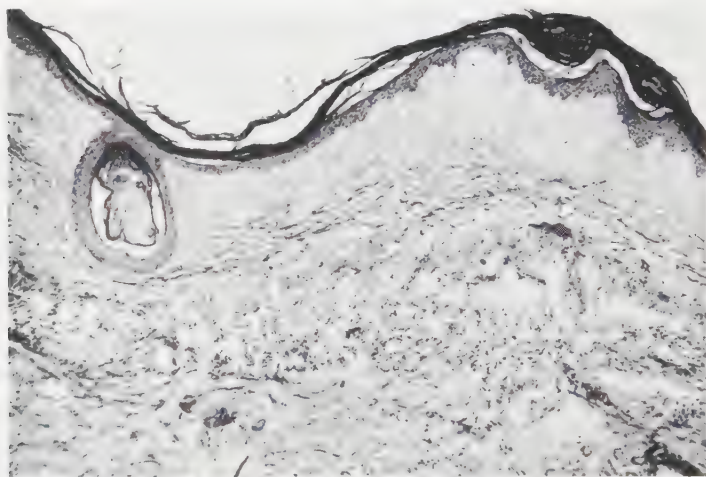


FIG. 4.—Case 2. Section from plaque at side of neck showing homogenised oedematous zone, band-like infiltrate. Between these areas condensed elastic fibres which have been pressed down from flattened papillary bodies by oedema. Elastin stain. $\times 47$.

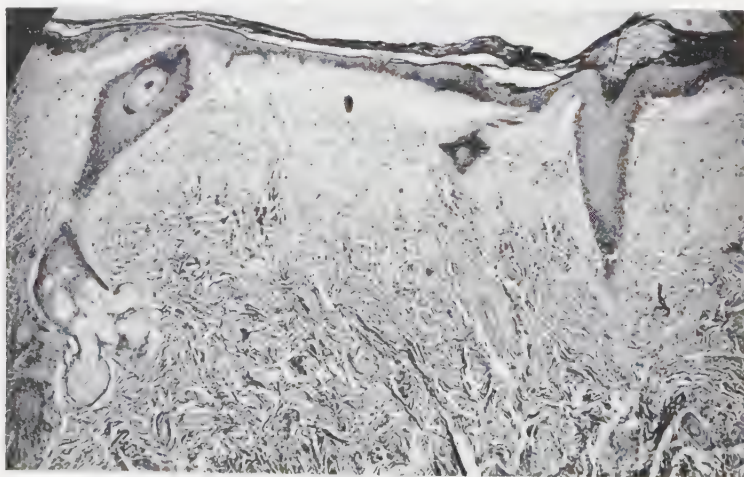


FIG. 5.—Case 2. Section from labium majus. Band of elastic fibres here missing; infiltrate less abundant and focal. Large clefts between epidermis and cutis. Elastin stain. $\times 48$.

a radiating distribution around the anus ; along the perineum were two linear plaques made up of coalescing papules.

The cutaneous lesions, including the transformed scars, showed no sign of resolution and a few new lesions had developed. The generalized keratosis pilaris was still present.

Treatment of the vulval lesions with Anthisan cream alleviated discomfort and stopped development of blisters, probably by eliminating friction.

The section from a skin lesion of the neck showed the usual picture (Fig. 4), but between the sub-epithelial zone and the infiltrate there is a band of stretched elastic fibres running parallel to the surface with a suggestion of the pattern of the papillary bodies. The collagen and elastic tissues of the lower cutis, the follicles, sweat glands and the deep vessels show no pathological changes.

In the section of the labium majus there is no evidence of elastic fibres in the upper third of the cutis (Fig. 5). The infiltrate here is scanty and shows perivascular and perifollicular arrangement. There are large clefts between the epidermis and cutis. Otherwise the section shows the same features as that of the skin lesions.

Case 3.—A girl aged 10 was shown by Dr. R. T. Brain and Dr. H. Haber at the meeting of the Dermatological Section of the Royal Society of Medicine on 16 June 1949. She was a tall, thin, nervous child. She had a pre-pubertal non-toxic goitre, but is otherwise well. She developed a lesion in the middle of the back nine months previously following a bruise. Later others appeared on the right shoulder, right hip and between the buttocks.

On examination she had a number of lesions, the largest 3 × 4 cm, the smallest 2 cm. in diameter. They showed all the characteristic morphological features of L.S. The histology of the lesion on the back was typical of L.S. She was, and remained, free of ano-genital manifestations.

She was treated with moderate doses of calciferol, Ephyнал and vitamin A. The lesion on the right hip was treated with x-ray (300 r).

All the lesions, including the one treated with x-ray, underwent gradual resolution within two years. The plaques which had been covered with crusts left a reddish-brown pigmentation, while the colour of the other scars is more like that of the surrounding skin. They are slightly depressed, and have a shiny surface with numerous punctiform depressions.

On re-examination (2.xii.1952). After a period of quiescence of two years, following fresh trauma another plaque developed in the atrophic scar on her left shoulder.

DIFFERENTIAL DIAGNOSIS.

The two conditions for which cutaneous L.S. may occasionally be mistaken are scleroderma guttatum and lichen planus atrophicus or sclerotisans, which in French and German literature is occasionally called secondary lichen sclerosis. In the latter, typical lichen planus lesions on the skin or in the mouth may be present with the atypical ones. Scleroderma guttatum may closely resemble L.S. clinically. In difficult cases the decision will rest with the histological section.

More frequent is the confusion of the vulval lesions with other genital conditions, such as leukoplakia, kraurosis, scleroderma and lichen planus, especially if there are no skin manifestations present to suggest the diagnosis.

Breisky (1885), who first described kraurosis, seems to have regarded it and leukoplakia as different phases of the same process and Berkeley and Bonney

(1910) were the first to separate them. Darier (1928) defined kraurosis as a progressive sclerotic shrinking of the vulva terminating in total or partial disappearance of the labia minora and majora and of the clitoris, leading to atresia of the vaginal orifice. He said kraurosis should not be confused with leukoplakia. Later Montgomery, Counsellor and Craig (1934) distinguished the two conditions on clinical and histological grounds.

Histologically kraurosis may be very similar to L.S., but according to Montgomery and Hill the keratotic plugging is not so marked in kraurosis. There is atrophy throughout the cutis, atrophic changes or total disappearance of the skin appendages and the subcutaneous fat, and obliterative changes in the deep vessels.

While both kraurosis and L.S. are atrophic conditions of the cutis with secondary atrophy of the epidermis, leukoplakia is essentially a hypertrophic process of the epidermis frequently leading to proliferation and malignant changes. Although Wallace and Whimster (1951) found leukoplakia complicating either kraurosis or L.S., they state that it may develop independently. The association of leukoplakia with the other two disorders may, I think, be provoked by the prolonged mechanical trauma of scratching and friction, especially in older women with severe vulval irritation; this is comparable with the buccal leukoplakia of habitual pipe-smokers or resulting from carious teeth.

Both kraurosis and leukoplakia are, as a rule, confined to the inner aspects of the vulva.

In scleroderma there is true sclerosis of the connective tissue starting deeply and eventually involving the whole of the cutis. The elastic fibres remain intact in the upper part of the dermis for a long time, or indefinitely. The infiltrate is scanty, even in the early stages, and mostly situated in the deeper part of the cutis and sub-cutis. There is atrophy of the skin appendages with obliterative changes in the deep vessels.

In L.S., on the other hand, the collagen in the lower parts of the cutis is normal. The elastic fibres are absent from the sub-epidermal hyalin area and in the infiltrate in the mid-cutis. The skin appendages are, as a rule, well preserved and there are no changes in the deep blood vessels.

Lichen planus is characterised by a band of dense infiltrate in close apposition to the epidermis. The elastic fibres are preserved in the upper cutis, especially in the younger lesions. The degenerative changes in the epidermis, the hyperkeratosis and the keratotic plugging may be similar to those of L.S.

DISCUSSION.

Eight cases of lichen sclerosus et atrophicus which started in female children between the ages of two and thirteen years have been observed. In only one case was there cutaneous as well as ano-genital involvement. Four of the

children had ano-genital, one only vulval manifestations, and in two the condition was confined to the cutaneous surface. In the first-mentioned patient ano-genital lesions developed after the skin eruption had been present for three years. In this case there was in six years' observation no sign of involution, but in the two girls with solely cutaneous involvement who had reached puberty, most of the lesions resolved in a comparatively short time. In another patient with exclusively vulval lesions, however, the early appearance of normal menstruation did not stop the progress of the disease.

In two patients there were partly haemorrhagic blisters on the vulva, and in one case in the anal region. Apparently the bullae are produced by lymphoedema, which through pressure leads to the formation of sub-epidermal lacunae. Extravasation of blood cells is frequent in the oedematous zone, owing to the vulnerability of the capillaries, which have lost the support of the stroma.

All the patients were of good general health, though three were more or less highly strung. In one, vulvo-vaginitis preceded the disease, and in another the first skin lesion and later on a relapse were provoked by trauma. In one patient typical L.S. lesions developed in two excision scars.

Four of the six patients with genital or ano-genital lesions had irritation or discomfort in the early stages. In one of them the discomfort was probably due to the associated vulvo-vaginitis, for it ceased after its resolution. The cutaneous lesions were symptomless.

The labia minora were shrunken in some degree in all the vulval cases except in one where the anal region was predominantly involved. In Case 1, which has been under observation for seven years, but whose condition started probably many years earlier, the labia minora and the body and hood of the clitoris have practically disappeared.

The histology showed variations according to the age and site of the lesion. In Case 1, where the changes had been present for many years, there was a zone of true sclerosis of the connective tissue with very scanty focal infiltrate beneath the hyaline, sub-epithelial area. The hair follicles and sebaceous glands were atrophied, but the sweat glands showed cystic dilatation. In all other cases hair follicles and sebaceous glands were well preserved.

A number of recommended treatments have been tried without result, including oestrogen locally and orally, vitamins D₂, A and E and cortisone ointment. When resolution occurred it seems to have been spontaneous, as in Case 2, who received no treatment at all. The subjective symptoms of ano-genital lesions, however, responded to local treatment with antihistamine cream and blister formation subsided, probably owing to elimination of friction.

SUMMARY.

The observation within a comparatively short period of eight cases of lichen sclerosus in female children, six of them with genital or ano-genital

manifestations, suggests that the condition is not quite so rare at this age as is generally assumed. Possibly it is frequently overlooked owing to lack of symptoms, reluctance to examine these parts and inadequate knowledge of the disorder.

The course of the disease is very chronic and unpredictable. While in two cases the skin lesions underwent resolution in one and a half and two years, in a third case with more general involvement there has been no sign of resolution during an observation period of six years, nor has there been any regression in the cases with ano-genital lesions. Various treatments have had no effect whatsoever.

There appeared to be no aetiological connection with general diseases or infections, or with psycho-neurological upsets. Local irritation or trauma, however, seemed to be provoking factors. Typical L.S. lesions developed in two excision scars, and in a patient whose first lesion developed from a bruise a relapse followed fresh trauma after years of quiescence. Vulvo-vaginitis preceded the condition in two of our cases.

Whether or not an endocrine factor plays a part is a matter for speculation, but it seems significant that most cases occur at or after the menopause. In our cases comparatively quick resolution of cutaneous lesions occurred in two subjects after puberty. In this connection it is interesting that L.S. affecting the ano-genital region seems to behave differently in young patients compared with adults. Wallace and Whimster, whose patients were mostly adults, record that they had usually pruritus and soreness. In five of their twenty patients there was complication with leukoplakia. Only four of our six patients with ano-genital lesions had moderate irritation or discomfort in the early stages, which responded readily to bland treatment. There was no evidence of leukoplakia in any of the sections. It should, however, be recalled that Miescher found in the youngest lesions an initial acanthosis which in older ones turned into atrophy. The former may sometimes suggest a beginning proliferation.

The shrinkage of the vulva which in one of our cases led to the disappearance of the labia minora, frenulum and clitoris and the often similar histological picture suggest a connection with kraurosis. Prolonged observation into sexual maturity of these and similar young patients may, perhaps, throw some light on this question.

I am indebted to Dr. W. J. O'Donovan, Dr. R. T. Brain, Dr. I. Muende and Dr. W. P. Elford for their permission to use their cases. I also wish to express my appreciation to the pathology and photographic departments of the London Hospital and the Hospital for Sick Children for their histological preparations and photographs.

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ROYAL SOCIETY OF MEDICINE.

SECTION OF DERMATOLOGY

President—Dr. G. B. DOWLING.

20 November 1952.

Dermatomyositis.—Dr. J. R. SIMPSON.

Mrs. E. B—, aged 52.

History.—Left local mastectomy in 1943 for "a lump in the breast." In 1948 she noticed irritation in that area.

When seen in October 1949 the tissues beneath and around the scar were indurated and there were two raised firm nodules in the area. Histological examination of a nodule showed scirrhous carcinoma.

Operation by Mr. G. M. FitzGibbon (6.xii.1949).—The skin and underlying tissues in the left pectoral area were excised, together with the anterior ends of the second and third ribs, and the left axilla was cleared. The histological report indicated that the growth had extended below the deep surface of removal.

Her condition was satisfactory until May 1952. She then developed redness and swelling of the eyelids and face. The swelling subsided in a month but the redness persisted and was later accompanied by scaling. These changes have gradually extended to the scalp, neck, right pectoral area, the shoulders and upper limbs and, most recently, the fronts of the knees. Itching has been prominent throughout. There has been no loss of hair. During this period there has been a gradual loss of muscle power. She has also developed slowness in speech and slight dysphagia.

On examination.—There is erythema and fine scaling on the scalp, pinnae, all round the neck, the eyelids and on the face. On the right side the rash extends over the shoulders and below the clavicle to the level of the second rib. On the left side it stops abruptly at the upper edge of the graft, just below the clavicle. The whole of the upper limbs is affected, except the medial aspect of the arms and the palms. Below the elbows and on the patches over the front of the knees there is conspicuous hyperkeratosis which shows a discrete follicular pattern in many areas, but is confluent in others. This change is well shown over the knuckles and the interphalangeal joints.

Muscular weakness is shown in the grip and in her inability to sit up from the supine position. Muscle wasting is not very marked, except in the interossei, and sclerosis is not obvious.

The pectoral graft is healthy except for a small crusted ulcer at the upper edge. There is a hard subcutaneous nodule in the left axilla, presumably a lymph gland.

Investigations (since 6.xi.1952). Skiagrams of chest, skull, dorsal and lumbar vertebrae show no evidence of metastases. Fluoroscopy shows normal movement of the diaphragm; heart and aorta normal in size and shape; oesophagus normal. Blood count normal. E.S.R. 19 mm. in one hour (Wintrobe). Creatine excreted in twenty-four hours = 0.083 g. Creatinine excreted in twenty-four hours = 0.59 g.

Plasma proteins: Total 8.95; albumin 3.90; globulin 5.05 g. %. Albumin-globulin ratio = 0.78 : 1.0.

W.R. negative. E.C.G. normal.

Histology (Dr. G. Stewart-Smith).—Skin of right forearm and brachioradialis muscle:

Skin: The epidermis shows slight hyperkeratosis with patchy stretching of the Malpighian layer and loss of papillae. At the lower margin of the epidermis there

are many dilated lymph channels and some small capillaries, and around these a moderate number of small round cells and some histiocytes: there is some oedema of the deeper layer.

Immediately beneath the epidermis the connective tissue has a sclerodermatous appearance and deep to this the collagen is rather coarse but does not show any "caking" such as was described by Dowling and Freudenthal (1938).

Thionin stain failed to demonstrate mucin.

Muscle: normal.

POSTSCRIPT. —She received ACTH intravenously, 25 mg. daily for a week, during which time the eruption faded and muscular power increased. Treatment was stopped abruptly on account of acute bronchopneumonia from which she made a rapid and complete recovery. In spite of this her dermatomyositis continued to improve, and two weeks after the last dose of ACTH the skin showed only faint brown staining and scarcely any hyperkeratosis; she could rise, unaided, direct from the supine position and her grip had doubled in power, as measured by a dynamometer.

REFERENCE.

DOWLING, G. B., and FREUDENTHAL, W. (1938) *Brit. J. Derm.*, **50**, 519.

Dr. L. FORMAN: This patient was operated on some time ago for an ovarian disorder and a uterine polypus was removed, the exact pathology of which has, unfortunately, not been determined.

The hyperkeratotic erythema shown in this case recalls the similar areas demonstrated in a patient in whom the diagnosis of ? lupus erythematosus had been offered. This patient, a young man, subsequently died of carcinoma of the colon (*Proc. R. Soc. Med.*, 1938, **31**, 474).

In these cases of dermatomyositis occurring in late middle age there would appear to be in many cases an associated visceral carcinoma.

Onchocerciasis.—Dr. K. D. CROW and Dr. R. H. SEVILLE.

N. C—, male, aged 27.

History.—Over three months ago, a few weeks before returning to England, an intensely irritating papular eruption appeared on the patient's back and, later, on the outer sides of his buttocks. This has remained essentially unchanged since then, except that individual lesions wax and wane in prominence, although none has actually disappeared. He has also noticed that the papules are more prominent and more irritating when his skin is warm.

For the past two years the patient has been engaged in agricultural research in the Gold Coast territory of West Africa. During most of this time his work has taken him into the interior, where he has been forced to live under somewhat primitive conditions.

On examination.—Across the shoulders and tapering off down to the lumbar region is an area in which are numerous, flesh-coloured, rounded papules about $\frac{1}{8}$ in. in diameter (Fig. 1). Many of these have been excoriated. On the outer sides of the buttocks are other papules, slightly larger and seeming deeper than those on the back. There are no excoriations in these areas. No firm subcutaneous nodules could be palpated. General examination of other systems reveals no abnormalities.

Special investigations.—Skin shavings: No embryos found. White cell count: 47% eosinophilia. Day and night blood films: No microfilaria seen. Faeces: No pathogenic ova or protozoa found. Filarial skin test positive; filarial complement-fixation test (C.F.T.) negative (performed at the Hospital for Tropical Diseases).

Histological section (papule).—Non-specific, perivascular eosinophilic and round-cell infiltration.

Comment (Dr. W. H. Jopling, Hospital for Tropical Diseases).—The skin changes are typical of onchocerciasis. Firm, mobile subcutaneous nodules are usually found later in the course of the disease, and are especially to be looked for in the region of the iliac crests. They contain the coiled-up female worm. Such

nodules are not present in this patient. The results of the special investigations carried out at St. John's Hospital have been confirmed, and skin test and complement-fixation test carried out as given.

One frequently finds difficulties in demonstrating embryos of *O. volvulus* in skin shavings, and warming the skin sometimes helps. Also, the blood films are always, and the C.F.T. may be, negative in proved cases. The skin test and the C.F.T. are group tests for the filaria worms and are not specific for onchocerciasis. Infections with *Loa loa* and *A. perstans* are excluded by the negative day-blood films and *W. bancrofti* by the negative night-blood films. Note that the skin test will remain positive for the rest of the patient's life, but the C.F.T. becomes negative a few months after the infection has been eradicated.

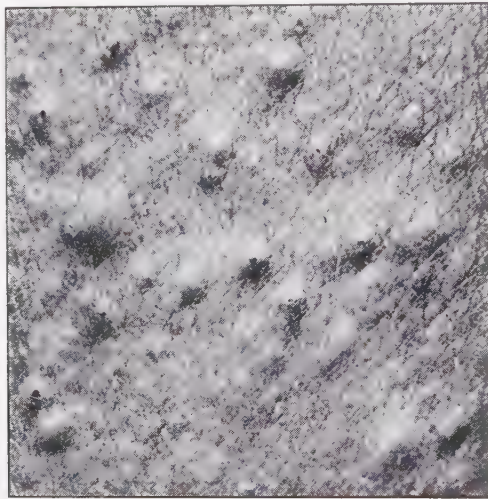


FIG. 1.

Treatment is being commenced with Banocide (Hetrazan) and dosage will gradually be increased from $\frac{1}{2}$ mg. kg. *t.d.s.* to a maximum of 3 mg. kg. *t.d.s.* The whole course will take three weeks. The initial dose is being made less than the usual commencing dose of 1 mg. kg. *t.d.s.* in view of the fact that we suspect early eye involvement, judging by the patient's complaint of photophobia. Early in the course of treatment an allergic reaction is not unlikely, and a small commencing dose is advisable in patients with eye involvement, in view of the potential hazard of an allergic reaction in the eyes. Should such a reaction occur, cortisone will be administered.

Acknowledgment.—We would like to thank Dr. G. B. Dowling and Sir George McRobert for permission to show this case.

THE PRESIDENT : Dr. Seville was responsible in the first place for the diagnosis of *craw-craw*. That apparently is a generic term which covers any eruption caused by filaria. The question was which one was responsible in this case. Onchocerciasis was suggested and seems likely to prove the correct diagnosis.

Dr. L. FORMAN : Is this an allergic reaction, or are there microfilariae in the skin ?

Dr. Seville : Though difficult to demonstrate, microfilariae are found in the lesions and occasionally in otherwise normal skin : I cannot say whether the local reaction always depends on their presence, but I would expect it to be the case. The lesions start as an itching papule which may become vesicular then excoriated and finally pruriginous. In the late stages, small cratered scars remain showing particularly well on pigmented skin.

Dr. J. SOMMERVILLE : We have had 2 cases in the Glasgow area, both from West Africa, presenting a very similar picture. It seems to come out mainly on the trunk and limbs and it gives an indeterminate follicular papular arrangement with a little scarring. There was very marked eosinophilia. It could be very confusing until one went into the question of where these people had been. It was treated with Hetrazan, with good results.

POSTSCRIPT.—After a week of treatment with Banocide a considerable allergic reaction of the Herxheimer type occurred. The patient's photophobia increased and many more papules appeared on the back, and irritation became much more severe. After two weeks of Banocide, the full dosage of 3 mg./kg. was reached and was continued for a further three weeks, the whole course taking five weeks in all. At the end of this time all the skin lesions had disappeared and the photophobia was no longer present.

As to the prognosis : Banocide does not kill the adult worms but only the microfilariae ; so that it must be anticipated that the patient will get further lesions. He must be kept under periodic observation, therefore, and treated with Banocide again, if and when necessary.

The ultimate outlook, however, is quite good.

Erythema Gyratum Perstans.—Dr. A. D. PORTER.

C. M—, male, aged 79.

Past History.—Lumbago.

Family History.—Nothing relevant.

History of present affection.—Skin trouble began on left hand four years ago. Since then fresh lesions have continued to come and go, chiefly on the extensor surfaces of the limbs, but occasionally on the trunk and, more than once, on the scalp.

Examination.—*Skin* : On the front of the left thigh there is a large annular lesion, which slowly spreads outwards and clears in the middle, leaving slight pigmentation. The active margin of the lesion is raised, red, hard and cord-like and at times has shown minute vesicles and a collarette of scales attached peripherally and free centrally.

General : Nothing abnormal was found except a raised blood pressure (180/90) and a mild mycotic infection between the toes.

Investigations.—W.R. and Kahn negative. Examination for fungi on lesions negative. Examination for fungi between toes positive. White cell count normal. 2% eosinophils. Throat swabs : no abnormal organisms were found on two occasions when fresh lesions were developing. Streptococcal agglutination titre = 1-640 when a lesion was clearing.

Histology (Dr. Haber).—The epidermis shows slight acanthosis, with vacuolation of some cells and hyaline degeneration of others, especially in the region of the basal layer. Oedema both within and between the cells of the prickle layer with signs of early vesicle formation. The corium has oedema near the dermo-epidermal junction and an inflammatory infiltrate containing many eosinophils.

Treatment.—Penicillin, chloromycetin and antihistamines all appeared to do good, but none has had a permanently beneficial effect. Arsenic was not tolerated.

Syringocystadenoma Papilliferum.—Dr. H. BLACK (for Dr. G. B. MITCHELL-HEGGS).

Mrs. E. C—, aged 46.

History.—The patient has had the small brownish-yellow papules on her scalp as long as she can remember. Two years ago this area of the scalp was injured and developed a red papillomatous outgrowth which has remained unaltered since. This exudes serous fluid. No lesions are present elsewhere.

On examination.—Grouped flat brownish-yellow slightly elevated papules on the scalp. Arising from one of these is a pyogenic granuloma-like outgrowth.

Wassermann reaction negative. Skull x-ray normal.

Histology.—The specimen is a syringocystadenoma papilliferum. It has papilliferous processes covered with squamous epithelium in between which are clefts lined with a double layer of epithelium, an outer layer of cuboidal and an inner layer of columnar epithelium. There is an intense plasma-cell infiltrate of the stroma.

I should like to know the opinion of the meeting about treatment for this patient. Reuterwall has reported recurrence after surgical excision, treatment with radium and removal by electro-coagulation. One case had had no recurrence 10 years after receiving x-ray therapy. Excision would mean removing a moderate-sized area of scalp and probably a skin graft to close the defect.

REFERENCE.

REUTERWALL, O. (1933) *Acta Scand. path. microbiol.*, Supplement 16, 376.

Dr. J. SOMMERVILLE: The difficulty in treating a lesion such as this is great. I recall a case where with the same site and size there was an associated rodent ulcer and that was excised. Part of the naevus was treated with CO₂ snow and cleared up, but the residue persisted. It was excised, but unfortunately not completely, and finally we had to go to plastic surgery. That has cured it. I have not seen the patient for several years.

The PRESIDENT: I support the statement that electrolysis does not cure, nor does freezing. They invariably relapse and ulcerate and behave unpleasantly. We always do surgical excision whenever possible.

Lichen Planus—Psoriasis.—Dr. B. SCHWARTZ.

Mr. F. T—, aged 65.

This patient was shown to this Section in April 1951, with lichenoid lesions that he had developed during the course of treatment for lupus erythematosus (*Brit. J. Derm.*, 1952, **64**, 61). Histology then showed overlapping features of lupus erythematosus and lichen planus.

His clinical condition subsequently remained unchanged despite a variety of treatments, but a section taken in March 1952 showed the features of lichen planus. He was shown at the 10th International Congress of Dermatology as a case of lichen planus hypertrophicus.

In September 1952 treatment by occluding certain areas with Viscopaste was started, and two weeks later it was noticed for the first time that he had typical psoriasis of his elbows. The treatment was continued until three weeks ago, when he suddenly developed a widespread papular eruption over his trunk and limbs. Individual red papules, which varied in size from one-eighth to half-an-inch in diameter, did not itch. Within a few days each papule developed a heavy central conical crust and took on the appearance of psoriasis rupioides.

A section showed features of psoriasis

Present condition.—1. Typical psoriasis is seen on the trunk, limbs and hands, and on the classical elbow and knee sites. Some of the lesions are rupioid and much resemble keratoderma blenorrhagicum.

2. On the forearms the former warty hypertrophic areas are being replaced by areas of diffuse loose scaling.

3. The heavy crusting on the ears is probably psoriasis, but the lesions on the scalp, the slight silvery of the lips and the lesions on the buccal mucosa are more likely lichen planus.

Investigations.—Blood count: Hb 100%. W.B.C. 4300. Polys. 44%, lymphos. 29%, monos. 8%, eos 19%. E.S.R. 41 mm. in the first hour (Wintrobe).

Blood Wassermann reaction and Kahn negative.

Treatment.—Since the acute eruption developed treatment has been sedation only.

Three days ago applications of ung. hydrarg. ammon. dil. were started to the fore-arms with some improvement to the condition.

Comment.—When he was first shown here it was predicted by some members that the condition would prove to be lichen planus, and the metamorphosis from lupus erythematosus (if indeed he ever did have lupus erythematosus) was confirmed by biopsy a year later.

The recent occurrence of psoriasis in this case may of course be merely coincidental, but in its development there has been involvement of the areas formerly affected by lichen planus, a superimposition which must be somewhat uncommon.

The following cases also were shown :

Erythema Elevatum Diutinum.—Dr. R. M. B. MacKENNA, Dr. K. D. CROW and Dr. H. HABER.

Dermatitis Herpetiformis and Arsenical Pigmentation Treated by Hypnosis.—Dr. K. H. COHEN.

Microsporon Scalp Ringworm in an Adult.—Dr. C. H. WHITTLE.

Multiple Leiomyomata.—Dr. G. A. BECK (for Dr. H. T. CALVERT).

Two Cases of Granulomatosis Disciformis Chronica et Progressiva (Miescher).—Dr. C. D. CALNAN.

Necrobiosis Lipoidica Diabeticorum.—Dr. D. L. REES (for Dr. G. B. DOWLING).

Skin Reaction to Sea Urchins.—Dr. MONTGOMERY (for Dr. E. J. MOYNAHAN).

NORTH BRITISH DERMATOLOGICAL SOCIETY.

Glasgow, 9 October 1952.

? **Incontinentia Pigmenti.**—Dr. R. L. CORMIE.

A boy, aged 12.

History.—Skin disorder since birth.

On examination.—There is dark brown pigmentation of the skin, arranged in bizarre streaky formation. It is roughly symmetrical and affects mainly the trunk but also the face, neck and slightly the arms.

He also has bilateral nerve deafness, gross defect of both lower limbs, similar to arthrogryphosis congenita, and a congenital heart lesion.

Histology.—The epidermis is normal with patchy areas of increased pigmentation of the basal layers. There is a slight excess of melanin-containing phagocytes in the corium. The histological picture is against a diagnosis of incontinentia pigmenti, in which the lesion described is one of great increase of the chromatophores in the cutis due to "incontinence" of the basal layer.

Comment.—The clinical picture, with the three congenital defects, supports the diagnosis of incontinentia pigmenti but the sex of the child and the histological appearances are rather against it. The alternative diagnoses are ichthyosis hystrix and erythroderma ichthyosiforme.

Parapsoriasis En Plaques (Brocq) Progressing to the Premycotic Stage of Mycosis Fungoides.—Dr. A. GIRDWOOD FERGUSON.

Mrs. A. McG—, aged 63.

History.—The eruption was first noticed on the right buttock about three years ago, as a slightly irritable patch which spread to involve the trunk and thighs. No treatment was given for this condition, nor were any laxatives or other medication administered, but she had a number of penicillin injections for a severe burn of the

left thigh prior to the onset of the skin condition, and again for a left suppurative otitis media from which she suffered for a month or two before admission to hospital.

Examination on admission.—16.xii.50: There is a patchy erythematous-squamous eruption with one small, circular, raised patch on the left scapular region and a circular, multiforme-like lesion on the left lower abdomen.

Investigations.—On admission: Hb 100%. R.B.C. 5,000,000, W.B.C. 5200, polys. 46%, eos. 4%, lymphos. 50%.

X-ray report.—Hands and feet: No abnormality. Chest: There are chronic bronchitic changes in the lung fields and the aorta is slightly unfolded.

Histology (Dr. JOHN A. MILNE).—*Left scapular region*: This shows a mild oedema of the epidermis with a small amount of non-specific chronic inflammatory infiltration in the upper corium. *Lumbar region*: At one end of the section there is a moderate acanthosis and oedema of the epidermis. In relation to this in the corium is an area of rather pleomorphic cellular infiltrate in which an occasional mitotic figure is seen. Several of the cells have shrunken pyknotic nuclei.

The histological appearances of the lesion from the scapular region are consistent with a diagnosis of parapsoriasis, while those of the lumbar region are suspicious of a premycotic change.

Treatment and progress.—X-ray therapy: Following 55 r to two areas on the back with marked improvement, the patient was given 4.5 r $\times$ 9 treatment sessions then 9 r $\times$ 6 and finally 13.5 r $\times$ 2, back and front, a total of 175.5 r.

Discharged on 24.ii.51, the patient has remained well and there has been little or no complaint of pruritus. The remaining lesions have not become infiltrated and have remained erythematous, dry and squamous.

An occasional fresh lesion has appeared and involuted.

Treatment with U.V.L. to individual lesions was started on 27.vii.51 and has been continued at varying intervals to date.

Spiegler-Fendt Sarcoid.—Dr. R. W. CARSLAW.

A married woman aged 61.

History.—Slightly tender nodes in left lumbar region for over five years. Swelling around eyes for over two years.

Past health.—Thyroid dysfunction thirty years ago.

On examination.—Swelling of the soft tissues about the left eye. There are subcutaneous discrete nodules on the left lumbar region with slight purplish discoloration of the skin over the nodules.

Investigations.—W.R. negative. Mantoux negative, 1:100.

Skigrams.—Lung fields normal and no enlargement of hilar or mediastinal glands.

Right nasal cavity blocked, with some bony hypertrophy of the septum and mucosal hypertrophy of middle and lower turbinates. Some thickening of the lining of the frontal bone and inner orbital surface.

No typical sarcoid changes in the hands.

Histology (left lumbar region).—Discrete and sharply defined masses of lymphocyte-like cells of varying size and contour are scattered in the dermis, apparently indiscriminately. The cells are rounded or bluntly elongated, and vary in size from rather larger than an erythrocyte to about three times that size. The cytoplasm is scanty, pale and featureless. The chromatin is fairly dense and often coarsely dusted; one or more nucleoli are present in some cells. Larger, paler cells occur singly and are relatively few. Within the masses the cells tend to form rounded groups, but there is no true follicle formation. No mitoses are found in the small cells, but two are seen in the larger cell type. Newly formed blood capillaries occur within the masses. Fibrosis is not in evidence, but old haemorrhages are indicated by frequent deposits of haemosiderin.

Xanthoma.—Dr. R. L. CORMIE.

A boy aged 4 months.

History.—The eruption began ten weeks ago as two spots on the back of the shoulders. Others have kept appearing and he has not been without the eruption since then. Some early lesions are reported to have cleared. The lesions have not itched.

On examination.—When first seen six weeks ago, on 25.viii.52, there was a scattered papular yellowish-red eruption on the trunk, face and scalp. The papules varied in size, mainly from about 2 mm. to 5 mm. These have persisted with little change except that some are possibly a little paler.

Investigations.—Blood count: R.B.C. 3,760,000, Hb 85%. W.B.C. 7800. Differential normal.

Blood cholesterol, 110.7 mg. %. Plasma fat (total), 1100 mg %.

Urine: No sugar or albumen.

Skiagrams.—Skeleton normal. Chest: enlarged thymus.

Histology.—The specimen shows an inflammation of the corium, follicular in pattern, mainly localized to the sweat glands and hair follicles. The lesion is well defined and consists of endothelioid cells and giant cells. No necrosis is seen and no doubly refractile foreign material. No acid-fast bacilli found.

The impression is that the lesion is either a xanthoma or an unusual type of tuberculide. The site of the lesion supports the possibility of a haematogenous infection.

Comment.—In discussion it was suggested that this was possibly a case of naevoxantho-endothelioma.

The following cases also were shown:

Dermatitis Herpetiformis (Treated with Lertigon).—Dr. MARY SMITH.

Hyperkeratosis of Hands as a Sequel to Chronic Dermatitis.—Dr. J. FERGUSSON SMITH.

Mycosis Fungoides.—Dr. R. W. CARSLAW.

Poikiloderma Vasculare Atrophicum.—Dr. G. LESLIE.

Naevus Verrucosus.—Dr. R. L. CORMIE.

Keratoderma Climactericum; Lichen Planus Atrophicus; Lichen Sclerosus et Atrophicus.—Dr. D. C. DEVINE (for Dr. J. SOMMERVILLE).

Edinburgh, 11 December 1952.

Sturge-Weber-Kalischer Syndrome.—Dr. G. A. GRANT PETERKIN.

A girl aged 12.

History.—The patient has had extensive haemangiomas affecting most of the skin since birth.

Lumbar sympathectomy was performed in 1950 for the treatment of an atrophic condition of the left foot complicated by bullae and infection.

There have been cycles of severe left frontal headaches, and she has suffered from epileptiform seizures since infancy. She is myopic, but there is no glaucoma.

She was investigated in Professor Dott's neuro-surgical unit where her c.s.f. was found to be devoid of blood and her skull skiagrams showed no abnormality. Angiography was not performed because in their opinion she is suffering from multiple intracerebral cirroid aneurysmal malformations which are too widespread to warrant surgical interference.

On examination.—The patient's skin is almost covered by haemangiomas, most of these being of the "port-wine stain" type, though on the left vertical region of the scalp one area has become granulomatous. Asymmetry of the face and body is obvious. The left leg is atrophic, and there are several scars on the foot resulting from trophic ulcers.

Relapsing Febrile Non-Suppurative Panniculitis (Weber-Christian Disease).—Dr. G. A. GRANT PETERKIN.

A woman aged 69.

History.—For 10 years or more the patient has suffered from nodules which tend to break down, discharge and then heal. They come on the legs and arms and occasionally the trunk, and they leave scars. Attacks of swelling of the nodules occur at irregular intervals, with sometimes a rise of temperature.

Her general health is good, and the W.R. is negative. There has seemed to be some response at times to penicillin, chloromycetin and Sulphatriad.

On examination.—From the shoulders to the hands and from the hip girdle to the ankles are multiple soft tumours not unlike lipomata. The skin over them is unchanged in colour except for a bluish appearance over two of them. The size of the nodules varies from 1 cm. to 10 cm. in diameter. Much scarring is present, and has left circular depressed areas, with slight pigmentation. The right big toe is the site of ulceration, apparently of trophic origin.

Histology.—The section shows a large focus of liquefying fat necrosis situated in the subcutaneous tissue, the necrotic reaction extending upwards into the deep part of the dermis. Despite the degree of tissue destruction there is surprisingly little cellular reaction, apart from a few degenerate lymphocytes and some foreign body type giant cells in the lesion and a surrounding palisade of small round cells at the periphery. The collagen overlying the lesion is severely damaged, the fibres appearing broken, amorphous and basophilic; here again there is very little cellular reaction.

Pretibial Myxoedema.—Dr. P. W. HANNAY.

A man aged 39.

History. The patient underwent irradiation of his thyroid for treatment of severe thyrotoxicosis about 18 years ago. The present condition of his eyes, fingers and left shin became apparent 3 or 4 years ago and has slowly increased in intensity.

He was seen by a surgeon in 1951, who excised the "nodule" from his left leg and sent it for pathological examination—apparently no diagnosis was made at that time.

On examination.—Marked exophthalmic ophthalmoplegia and gross clubbing of the fingers; no enlargement of the thyroid, no tremor of the fingers, no cardiac involvement.

Over the anterior and lateral aspects of the left shin is a large raised plaque. Its surface is nodular, and the lesion appears almost translucent beneath the thickened integument. There is a hypertrophic scar in the centre of the plaque.

Investigations.—B.M.R. normal. W.B.C. 8000. W.R. and Kahn negative. Histology confirmed the clinical diagnosis. Mucoid material flowed from the biopsy wound.

Treatment.—The patient was referred to Professor D. M. Dunlop for cortisone therapy. There was no response to systemic treatment. The course was repeated, but cortisone was also injected locally; this brought about marked improvement in the pretibial condition, and when hyaluronidase was also injected the plaque flattened completely. However, it recurred within 3 months and has failed to respond to further treatment.

Comment.—The factors that govern the deposition of mucin in the skin are unknown. Trotter and Eden (1942) drew attention to the fact (already mentioned by others) that overactivity of the pituitary occurs in thyrotoxicosis and in myxoedema due to destruction of the thyroid, and they suggest that this common factor may govern the deposition of mucin. In the present case there are no signs of true myxoedema, but the exophthalmic ophthalmoplegia is evidence of pituitary overactivity.

There is still no reliable treatment for these cases.

REFERENCE.

TROTTER, W. R., and EDEN, K. C. (1942) *Quart. J. Med.*, **35**, 229.

The following cases also were shown :

Lupus Vulgaris Treated with Tuberculin.—Dr. ROBERT AITKEN.

Pityriasis Lichenoides.—Professor G. H. PERCIVAL.

Senile Elastosis ; Scleroderma ; Lichen Sclerosus et Atrophicus of the Face ; Lichen Striatus ; Congenital Ectodermal Defect ; ? Epidermolysis Bullosa.—Dr. G. A. GRANT PETERKIN.

Naevus Comedonicus ; Sarcoidosis.—Dr. P. W. HANNAY.

BOOK REVIEWS.

THE 1952 YEAR BOOK.*

It is a sign of the uneven distribution of Cortisone and ACTH in the world that the first chapter in this book consists of fifteen pages on the use of these hormones, intended as a guide for the general practitioner. In these fifteen pages is set down a useful summary of the present position, though this is hardly sufficient to equip the general practitioner for this difficult form of therapy.

The remainder of the book is, as usual, devoted to very adequate summaries of almost every dermatological paper of importance which has appeared in the past year, followed by the comments of the editors ; comments which are wise, patient, and sometimes perhaps a little too charitable.

The completeness of the *Year Book* and the care with which it is compiled are such that no dermatologist would wish to be without it. It is to the editors' credit that it is by no means a large book, but for its size the price is rather high.

F. R. B.

MEDICINE.†

THERE have been a number of new British medical books since the war, but the appearance of this text book of medicine is of particular interest. The editors have chosen their collaborators in about equal proportions from Wales, the Provinces and London, and all are well qualified to deal with their respective subjects. What is equally important, all can write, and the literary standard of the articles is astonishingly high. The book is a large one, 2,146 pages, and the arrangement is original. Half the first volume furnishes, as it were, an introduction to systemic medicine and the titles of these earlier chapters are worth quoting, as they could well serve as a programme for the introductory course which is now an integral part of the clinical period in a teaching hospital. These subjects are : the Evolution of Modern Medicine, the Assessment and Promotion of Physical and Mental Health, the Natural History of Disease, Social Aspects of the Aetiology of Disease, the Genetic Factor in Disease, the Patient as a Person, Nutrition and Disease, Infection and Immunity,

* *The 1952 Year Book of Dermatology and Syphilology.* Edited by MARION B. SULZBERGER and RUDOLF L. BAER. Chicago : The Year Book Publishers, Inc. Pp. 448. 67 illus. Price 45s. 0d.

† *Medicine.* Edited by HUGH G. GARLAND and WILLIAM PHILLIPS, with a foreword by F. A. E. CREW. London : MacMillan & Co., Ltd. 2 volumes. Pp. 2,146. 167 pages of art plates. £6.

Neoplasms, Principles of Diagnosis in Disorders of Adults and of Children, the Place of Radiology in Diagnosis, Laboratory Methods in Diagnosis, General Principles of Treatment in Adults and in Children, Symptomatic Treatment and the Use of Drugs, Rehabilitation, and the Frequency and Mortality of Common Diseases.

This is a sound arrangement, particularly as the emphasis throughout is on the patient as an individual, an attitude which is well illustrated in the late Professor Ryle's articles on Health and the Natural History of Disease. It is, indeed, unfair to discriminate when there is so much good material, but Professor Wayne's articles on treatment seemed to be especially sensible and readable.

The rest of the book is devoted to systemic medicine and is equally well done. The quality of the writing and of the illustrations is high. There are a few errors in the numbering of illustrations which can be corrected in new editions.

Dr. Ingram's chapter on "The Skin in General Medicine" (91 pages) is well designed to show the importance of some knowledge of dermatology in those who practise general medicine. He gives a large amount of his space to an account of the functional diseases of the skin. Of the organic diseases, he wisely deals with those that are most likely to be seen in practice and there is a useful account of some of the industrial diseases. The illustrations are in black and white and are well chosen, but the absence of colour is bound to limit the help they can give to the student.

This is indeed a fine production and one can but agree with Professor Crew: "To its editors I am greatly indebted. Through their successful labours I have been much profited, both in knowledge and in understanding."

There are only two criticisms, and it is difficult to see how they can be met. The first is the weight (each volume weighs 7 lbs.), and the second is the cost, which is a heavy one for the individual, be he student or practitioner. A. W.

CURRENT LITERATURE.

ABSORPTION OF PYRIBENZAMINE THROUGH INTACT AND DAMAGED SKIN. T. J. MICHELFELDER and S. M. PECK. (1952) *J. invest. Derm.*, 19, 237.

The hydrochloride of pyribenzamine is soluble in water, the base itself in fat. Absorption of the drug can be demonstrated both by its appearance in the urine and by its effect on whealing of the skin to which it has been applied. Both methods are employed. Through normal skin the base in a greasy vehicle penetrates better than the hydrochloride does in a cream. In absorption through altered skin the nature and degree of the damage—psoriasis, eczema, lichenification—makes much more difference than the nature of the vehicle or the concentration of the drug.

The photographs of wheals arising in the various circumstances of the experiment are excellent. But one cannot help thinking that if the wheal thus modified by treatment has become tolerable it would not require a great deal more fortitude to endure it as it was without any. The authors, however, assure us that the local anaesthetic effect is substantial, especially that of the base. This paper should be read by all who are interested in the subject of penetration by the ingredients of ointments.

J. H. T. D.

SOME IMMUNOLOGIC PHENOMENA IN TREATMENT OF AND PATCH TESTING FOR RAGWEED OIL DERMATITIS. A. A. FISHER. (1952) *J. invest. Derm.*, 19, 271.

One can buy an outfit for treating patients allergic to ragweed, consisting of three little bottles of the specific oleoresin variously diluted in corn oil and a supply of gelatin capsules. The patient, taking care not to get it on his fingers, puts the appropriate number of drops of oil in a capsule and swallows it. If he takes too much he gets pruritus ani next day. If he perseveres long enough he gets a lot better in a year or two. The same firm also supply an outfit for patch testing. In order ostensibly to avoid excessive demand on intelligence and manual dexterity they incorporate a dye to remind the subject of the site of the application. It seems that quite a lot of folk are sensitive to the dye.

It is of interest to note that every one of 18 patients sensitive to ragweed was also sensitive

to pyrethrum, but only 3 of 8 pyrethrum-sensitive subjects gave positive patch tests to ragweed. No attempt is made at the moment to explain this and other observations of the same kind, but it is hoped that in the course of future investigation the factors of personality and social background will not be omitted from the study.

J. H. T. D.

LOCALIZED CHROMIDROSIS: A DISORDER OF THE APOCRINE GLAND. W. B. SHELLEY and H. J. HURLEY. (1952) *J. invest. Derm.*, 19, 265.

Two patients came under observation on account of coloured sweat. A negro male of 30 secreted blue sweat from his axillae; the damask cheek of a white female of 29 astonishingly yielded a pepper and salt mixture.

The secretion, evoked by adrenalin but not by pilocarpine, appeared to issue from the hair-follicles and dried into little gummy scabs.

It is said that when he is cross the hippopotamus secretes a red apocrine sweat and thereby provides an exemplar for the over-conscientious.

J. H. T. D.

FAILURE OF A LOCAL INHIBITORY ACTION ON LOCAL INJECTION OF THE FREE ALCOHOL OF COMPOUND F (HYDROCORTISONE) IN SOME DERMATOLOGIC LESIONS. L. GOLDMAN, H. O'HARA, E. EMURA and J. BASKER. (1952) *J. invest. Derm.*, 19, 267.

"In contradistinction to the failure of local interference with inflammation on local injection, in our experience, with 42 patients to date, the free alcohol of Compound F given orally has a definite inhibiting effect on varied types of skin lesion." To be sure, free alcohol would have a similar effect on the communication of ideas.

J. H. T. D.

TINEA CAPITIS TREATED WITH THIOLUTIN. A. G. FRANKS. (1952) *J. invest. Derm.*, 19, 269.

A new antibiotic was tried in 13 cases of T.T. having an average age of $7\frac{1}{2}$ years, and the disease having been present for an average of 6 months. It would appear to work by "a strong inflammatory reaction . . . after 2-3 weeks . . . discontinued . . . soothing application of wet dressings." Anyhow 7 cases were cured, 2 failed to respond, and 4 to return for inspection.

It doesn't say so, of course, but it must be inferred that the ages of the patients cured and the length of the time they had had the disease were as follows: 4 boys of 15 years each having had the disease 2 years, 3 babies of 6 weeks having had it for a fortnight. The two failures were girls of 8 years who had had the disease for 3 months. The 4 who failed to return can be provided with ages, etc., to suit the fancy of any reader caring to work out the sum.

J. H. T. D.

CHANGING CONCEPTS IN THE SERO-DIAGNOSIS OF SYPHILIS; SPECIFIC TREPONEMAL ANTIBODY VERSUS WASSERMANN REAGIN. ROBERT A. NELSON, Jr. (1952) *Brit. J. vener. Dis.*, 28, 160.

A technical paper, based upon a simple approach to the question, from which certain facts emerge. The key to the discovery of immobilizing antibody lay in the ability to sustain the treponemata *in vitro* for periods long enough for the action of the antibody to become manifest. The key to the disappearance phenomenon lies in—

(i) The ability to obtain from the rabbit tissue-free suspensions of organisms which were also free of small amounts of antibody,

(ii) The use of indirect techniques for measuring antibody action, rather than the staining of leucocytes used in classical phagocytosis experiments.

The author concludes that perhaps the key to the cultivation of *T. pallidum* will also be found in some such simple principle.

W. G. A.

MANAGEMENT OF VESICAL DYSFUNCTION OF NEUROSYPHILIS BY TRANSURETHRAL RESECTION OF THE VESICAL NECK. W. FOWLER. (1952) *Brit. J. vener. Dis.*, 28, 201.

Transurethral resection of the vesical neck in cord bladder is a simple operation almost entirely free from risk and unpleasant sequelae. Only one patient has developed increased vesical dysfunction, and one developed a complication the result of an accident. The cause of failure in certain cases is unknown, but it may be that insufficient tissue was removed from the vesical neck. It is not possible to say how long the beneficial results may persist.

W. G. A.

OSTEOPOROSIS AND PATHOLOGICAL FRACTURES FOLLOWING TREATMENT WITH ACTH AND CORTISONE. R. TEICHER and C. T. NELSON. (1952) *J. invest. Derm.*, **19**, 205.

A man aged 48 with pemphigus had been kept alive since July, 1949, by means of cortisone. In May, 1951, after 41,650 mg. of cortisone and 4135 mg. of ACTH (70 mg. a day over the whole period) skiagrams showed demineralization of his spine. He was given calcium and testosterone to combat this without appreciable effect. In June, 1951, when the pemphigus seemed to be escaping from cortisone control he had to be given really heroic doses, and during the next two months he used 23,000 mg. (400 mg. a day). Since this time he has required as much as 200 mg. a day to keep him tolerably clear, but he still has blisters in the mouth. In November "cod-fishing" of the lumbar vertebrae supervened, necessitating a plaster jacket which, it was thought, might be incompatible with the pemphigus if it got bad again. It is of course the incontestable duty of the physicians not only to keep his patient alive while hope of recovery remains—in this case presumably in some yet undiscovered and still more expensive drug—but to fight his losing battle with death to the end, regardless of consequences.

J. H. T. D.

ELECTRON-MICROSCOPIC STUDY OF EPIDERMAL PRICKLE CELLS. E. L. LADEN, J. O. ERICKSON and D. ARMEN. (1952) *J. invest. Derm.*, **19**, 211.

The Malpighian layer would appear to be a syncytium the cytoplasm of which circulates through the "prickles." Undoubtedly the existence of such an arrangement would help to explain certain phenomena of vesicle formation. No support is provided for the old idea that the prickles represent the intercellular part of a network of fibrils enclosed in the basement membrane. The illustrations appear to the uninstructed eye to be photomicrographs at unusually high magnification of ordinary sections, and they do not portray the surrealist world of armoured hose-pipes and liquorice all-sorts that we have some to expect from the electron microscope.

J. H. T. D.

STUDIES OF THE ETHER-SOLUBLE SUBSTANCES ON THE HUMAN SKIN: II. P. H. PROSE, R. L. BAER and F. HERRMANN. (1952) *J. invest. Derm.*, **19**, 227.

Patients with acne have more ether-soluble material on their skins and secrete it more rapidly than normal people, but there is no direct relationship between the degree of greasiness and the severity of the acne. Indeed it is possible, for example, during treatment with cortisone for acne to develop at the same time as the sebaceous secretion is being reduced.

After 8 x-ray exposures of 85 r to the face, the sebaceous secretion is approximately halved—the acne improving *pari passu*. But acne is said also to improve with ultraviolet light, which has no effect on the sebaceous secretion itself, though doubtless by inducing desquamation it may interfere with comedo formation. Moreover acne sometimes improves in the summer; and when this happens it is supposed that it is due to a more complete emulsification of the sebum by sweat.

While the experimental part of this work may have permanent value, the conclusions drawn from it are unfortunately based on the absurd superstition that the inflammatory papule of acne is a foreign body reaction to the comedo. Anyone who takes the trouble closely to examine a case of acne cannot fail to be impressed by the fact that many of the "pimples" have no comedo at all and still more comedones never develop a pimple. Indeed, as confirmed by the authors' own experience, while the two phenomena, the epidermal hyperplasia (comedo and steatorrhoea) and the hyperaemic papule, may have some common factor of causation, they do not necessarily coincide either in space or in time.

J. H. T. D.

THE COMBAT AGAINST SKIN TUBERCULOSIS IN NORDWÜRTTEMBERG. W. SEVIN and M. MAYER. (1953) *Derm. Wschr.*, **127**, 73.

The authors describe the machinery in Nordwürttemberg for the above and give a statistical survey (1935–1951). A comparison of the figures for 1939 and 1951 reveals no evidence of a general increase in the frequency of skin tuberculosis in the post-war period; tuberculosis cutis colliquativa and Morbus Boeck increased. During the first post-war years the frequency of relapses was slightly increased.

M. S. S.

THE INFLUENCE OF THE NERVOUS SYSTEM ON THE SEAT OF A NEURODERMATITIS DIFFUSA. O. BRAUN-FALCO. (1952) *Derm. Wschr.*, **126**, 1026.

In this patient neurodermatitis otherwise symmetrically distributed spared a paralysed arm (anterior poliomyelitis several years earlier).

M. S. S.